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CATALOG B-621

dc power supplies

kepco inc.®

131-38 SANFORD AVENUE • FLUSHING 52, N. Y. • (212) IN 1-7000

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DESIGN GROUP INDEX

(See pages 38-39 for index by output voltage)

TRANSISTORIZED GROUP

	MODEL	DC OUTPUT RANGE VOLTS	AMPS	AC INPUT AMPS▼
ABC REGULATED DC SUPPLY 0.05% REGULATION PAGES 8-9	*ABC 2-1M	0-2	0-1	0.3
	*ABC 7.5-2M	0-7.5	0-2	0.5
	*ABC 15-1M	0-15	0-1	0.5
	*ABC 30-0.3M	0-30	0-0.3	0.3
	*ABC 40-0.5M	0-40	0-0.5	0.5
	*ABC 200M	0-200	0-0.1	0.5
	*ABC 1500M	0-1500	0-0.005	0.5
KS REGULATED DC SUPPLY 0.05% REGULATION PAGES 10-11	*KS 8-100M	0-8	0-100	24
	*KS 18-50M	0-18	0-50	24
	*KS 36-30M	0-36	0-30	24
	*KS 60-20M	0-60	0-20	26
KO REGULATED DC SUPPLY 1% REGULATION PAGES 12-13	*KO 12-100M	0-12	0-100	24
	*KO 25-50M	0-25	0-50	24
	*KO 45-30M	0-45	0-30	24
	*KO 70-20M	0-70	0-20	24
SM REGULATED DC SUPPLY 0.1% REGULATION PAGES 14-15	SM 14-7M	0-14	0-7	3.5
	SM 14-15M	0-14	0-15	5.5
	SM 14-30M	0-14	0-30	10.5
	SM 36-5M	0-36	0-5	4.0
	SM 36-10M	0-36	0-10	6.5
	SM 36-15M	0-36	0-15	10.5
	SM 75-2M	0-75	0-2	4.0
	SM 75-5M	0-75	0-5	6.5
	SM 75-8M	0-75	0-8	10.0
	SM 160-1M	0-160	0-1	3.5
	SM 160-2M	0-160	0-2	5.5
	SM 160-4M	0-160	0-4	10.5
	SM 325-0.5M	0-165-325	0-0.5	3.5
	SM 325-1M	0-325	0-1	5.0
	SM 325-2M	0-325	0-2	11.0
SM REGULATED DC SUPPLY 0.01% REGULATION PAGES 14-15	SM 14-7MX	0-14	0-7	3.5
	SM 14-15MX	0-14	0-15	5.5
	SM 14-30MX	0-14	0-30	10.5
	SM 36-5MX	0-36	0-5	4.0
	SM 36-10MX	0-36	0-10	6.5
	SM 36-15MX	0-36	0-15	10.5
	SM 75-2MX	0-75	0-2	4.0
	SM 75-5MX	0-75	0-5	6.5
	SM 75-8MX	0-75	0-8	10.0
	SM 160-1MX	0-160	0-1	3.5
	SM 160-2MX	0-160	0-2	5.5
	SM 160-4MX	0-160	0-4	10.5
	SM 325-0.5MX	0-165-325	0-0.5	3.5
	SM 325-1MX	0-325	0-1	5.0
	SM 325-2MX	0-325	0-2	11.0

TRANSISTORIZED GROUP

	MODEL	DC OUTPUT RANGE VOLTS	AMPS	AC INPUT AMPS▼
SC REGULATED DC SUPPLY 0.1% REGULATION PAGES 16-17	*SC 18-0.5M	0-18	0-0.5	1.0
	*SC 18-1M	0-18	0-1	1.0
	*SC 18-2M	0-18	0-2	1.5
	*SC 18-4M	0-18	0-4	3.0
	*SC 33-5M	0-33	0-5	5.0
	*SC 36-0.5M	0-36	0-0.5	1.0
	*SC 36-1M	0-36	0-1	1.5
	*SC 36-2M	0-36	0-2	2.5
	*SC 3672-0.5M	36-72	0-0.5	1.5
	*SC 3672-1M	0-36-72	0-1	4.0
SC REGULATED DC SUPPLY 0.01% REGULATION PAGES 18-19	*SC 32-0.5	0-32	0-0.5	1.5
	*SC 32-1	0-32	0-1	2.0
	*SC 32-1.5	0-32	0-1.5	2.0
	*2SC 32-1.5 Dual Output	0-32 0-32	0-1.5 0-1.5	3.0
	*SC 32-2.5	0-32	0-2.5	3.0
	*SC 32-5	0-32	0-5	5.0
	SC 32-10A	0-32	0-10	8.0
	SC 32-15A	0-32	0-15	12.0
	SC 60-2	0-60	0-2	5.0
	SC 60-5	0-60	0-5	11.5
	*2SC 100-0.2 Dual Output	0-100 0-100	0-0.2 0-0.2	1.5
	SC 150-1	0-150	0-1	5.5
	SC 300-1	0-300	0-1	11.0
PSC REGULATED DC SUPPLY 0.02% REGULATION PAGES 20-21	*PSC 5-2	0-7.5	0-2	1.0
	*PSC 10-2	7.5-12.5	0-2	1.0
	*PSC 15-2	12.5-17.5	0-2	1.5
	*PSC 20-2	17.5-22.5	0-2	1.5
	*PSC 28-1	22.5-32.5	0-1	1.5
	*PSC 38-1	32.5-42.5	0-1	1.5
SR REGULATED DC SUPPLY 0.1% REGULATION PAGES 22-23	• SR 12-50	5-13	0-50	7.5/ϕ
	• SR 28-50	24-32	0-50	13.5/ϕ
	• SR 48-30	44-52	0-30	13.5/ϕ
HB REGULATED DC SUPPLY 0.1% REGULATION PAGES 24-25	*HB 2M	0-325	0-200ma	2.0
	*HB 4M	0-325	0-400ma	3.0
	*HB 6M	0-325	0-600ma	5.0
	*HB 8M	0-325	0-800ma	5.5
HB REGULATED DC SUPPLY 0.01% REGULATION PAGES 24-25	*HB 20M	0-325	0-200ma	2.0
	*HB 40M	0-325	0-400ma	3.0
	*HB 60M	0-325	0-600ma	5.0
	*HB 80M	0-325	0-800ma	5.5
DR REGULATED DC SUPPLY 0.01% REGULATION PAGE 36	*DR-11	0-11.110	0-1	1.3
	*DR-400	0-411.110	0-0.5	4.9

• PROGRAMMABLE FOR VOLTAGE ONLY

VACUUM TUBE GROUP

KR REGULATED DC SUPPLY

0.1% REGULATION
PAGES 28-29

MODEL	DC OUTPUT RANGE VOLTS	AMPS	AC INPUT AMPS▼
KR 11M	0-150	0-125 ma	2.0
KR 1M	100-200	0-125 ma	2.0
KR 2M	195-325	0-125 ma	2.0
KR 9M	295-450	0-125 ma	2.0
KR 12M	0-150	0-300 ma	3.5
KR 3M	100-200	0-300 ma	3.0
KR 4M	195-325	0-300 ma	4.0
KR 10M	295-450	0-300 ma	4.0
KR 8M	0-150	0-600 ma	5.5
KR 5M	100-200	0-600 ma	5.5
KR 6M	195-325	0-600 ma	6.5
KR 7M	295-450	0-600 ma	7.5
KR 16M	0-150	0-1.5 Amp	9.0
KR 17M	100-200	0-1.5 Amp	9.0
KR 18M	195-325	0-1.5 Amp	12.0
KR 19M	295-450	0-1.5 Amp	16.0

Wide Range REGULATED DC SUPPLY

<0.1% REGULATION
PAGES 30-31

MODEL	DC OUTPUT RANGE VOLTS	AMPS	AC INPUT AMPS▼
400B	0-400 0-150 Bias	0-150 ma 0-5 ma	3.0
430D	#1 0-450 #2 0-450 Parallel 1 & 2 0-450 Series 1 & 2 0-900	0-300 ma 0-300 ma 0-600 ma 0-300 ma	8.0
605	0-600 0-150 Bias	0-500 ma 0-5 ma	8.0
615B	0-600 0-150 Bias	0-300 ma 0-5 ma	6.0
800B	#1 0-600 #2 0-600 Parallel 1 & 2 0-600 Series 1 & 2 0-1200	0-200 ma 0-200 ma 0-400 ma 0-200 ma	7.5
1220C	0-1200	0-50 ma	3.0
1250B	0-1000	0-500 ma	12.5
1520B	0-1500	0-200 ma	7.0

VACUUM TUBE GROUP

Wide Range REGULATED DC SUPPLY

<0.1% REGULATION
PAGES 30-31

MODEL	DC OUTPUT RANGE VOLTS	AMPS	AC INPUT AMPS▼
2400B	#1 0-150 Bias #2 0-400 #3 0-400 Parallel 2 & 3 0-400 Series 2 & 3 0-800	0-5 ma 0-150 ma 0-150 ma 0-300 ma 0-150 ma.	5.0
2500	0-2500	0-50 ma	3.0

unregulated
PAGES 30-31

MODEL	DC OUTPUT RANGE VOLTS	AMPS	AC INPUT AMPS▼
103	#1 0-300 #2 0-300 #3 −50 to+50 Parallel 1 & 2 0-300	0-75 ma 0-75 ma 0-5 ma. 0-150 ma	1.5

MAGNETIC GROUP

KM REGULATED DC SUPPLY

0.5% REGULATION
PAGE 32

±1% REGULATION
PAGE 33

MODEL	DC OUTPUT RANGE VOLTS	AMPS	AC INPUT AMPS▼
KM 236-15A	0.1-36	0-15	9.0
KM 236-30	0.1-36	0-30	17.0
KM 236-50	0.1-36	0-50	19.0 (208 v)
KM 251	2-14	30 a or 240 w	5.0
KM 252	5-35	12 a or 240 w	5.0
KM 253	20-60	6 a or 240 w	5.0
KM 254	30-90	4 a or 240 w	5.0
KM 255	60-180	2 a or 240 w	5.0

SOLID STATE GROUP

PR REGULATED DC SUPPLY

±1% REGULATION
PAGES 34-35

MODEL	DC OUTPUT RANGE VOLTS	AMPS	AC INPUT AMPS▼
PR 15-10M	0-7.5-15	0-10	3.5
PR 15-30M	0-15	0-30	7.0
PR 38-5M	0-19-38	0-5	4.0
PR 38-15M	0-38	0-15	9.0
PR 80-2.5M	0-40-80	0-2.5	4.0
PR 80-8M	0-80	0-8	9.5
PR 155-1M	0-78-155	0-1	3.0
PR 155-4M	0-155	0-4	9.0
PR 310-0.6M	0-155-310	0-0.6	3.0
PR 310-2M	0-310	0-2	9.0

▼ AC INPUT VALUES ARE CONSERVATIVE MAXIMUM DESIGN CURRENTS FOR CALCULATION OF INPUT POWER AND WIRE SIZE.

SUBSTANTIAL QUANTITIES OF LISTED POWER SUPPLIES ARE ALWAYS AVAILABLE FROM STOCK.

* *Programmable current and voltage regulated power supplies, see Pages 26-27*
- *Nomograph of voltage drop versus wire size and supply current on page 37*
- *Selection and application of power supplies, and design notes, see page 5*
- *Glossary of power supply terms, see pages 6-7*

Kepco Inc., the leading supplier of Wide Range Regulated Power Supplies, has enjoyed over 15 years of service to the Laboratory and Industrial user of Regulated Power.

In recognition of the scope of Power Supply applications, the Wide Range Regulated Power Supply was introduced early in the company's history and has since proved to be the most practical and reliable solution to power supply problems. This stems from the fact that the general purpose field tested design offers greater reliability at lower cost in contrast to the higher cost unproven custom design.

KEPCO'S MAJOR PIONEERING CONTRIBUTIONS TO THE POWER SUPPLY FIELD

- *Precision Regulation*
- *The Voltage Comparison Bridge Regulator*
- *Full Voltage Range Regulation*
- *Short Circuit Protection by Current Limiting*
- *Elimination of Voltage Overshoot*
- *Remote Programming*
- *Remote Error Sensing*
- *The Switching Type Regulator*
- *Wide Range Magnetic Regulators*
- *Hybrid Regulators*
- *Voltage Correcting Systems*
- *Proportional Control of Multiple Supplies*
- *Thermal Protection*
- *High Efficiency Lateral Cooling*

Having set the pace in the power supply field, Kepco continues to improve concepts and design techniques to meet the needs of advanced electronic systems.

The Kepco organization is composed of a complete manufacturing facility supported by a highly competent staff of engineers, technicians, and technical liason personnel. In addition to a complete assembly, wiring and testing operation, the plant contains complete transformer manufacturing and sheet metal fabrication facilities.

To maintain Kepco's traditional product superiority, a Quality Assurance Program is in effect through all phases of the manufacturing operation. This program, conforming basically to MIL Q-9858, is approved by leading contractors to the U.S. Military Services. Many thousands of Power Supply installations, with reports of negligible down time, are testimonials to Kepco's Engineering and Manufacturing skills.

SELECTION & APPLICATION OF POWER SUPPLIES

This catalog has been designed to facilitate your selection of the right Power Supply.

Included on pages 2 and 3 is a tabulation of all models according to DESIGN GROUP and PERCENT REGULATION, with a corresponding list showing the output voltage and current, and input line current of each. A complete listing of all models according to OUTPUT VOLTAGE and CURRENT is found on pages 38 and 39. All PROGRAMMABLE supplies are listed on page 27, with an adjoining page of programming application notes. The body of the catalog covers each model in detail, by design groups, completely delineating electrical and mechanical characteristics, plus specific features.

Included below are some design notes and a glossary of terms to assist the engineer in the proper application and understanding of Regulated Power Supplies.

DESIGN NOTES:

In a Wide Range Power Supply, the ability to maintain specified regulation over the *full range* of voltage is a very desirable characteristic. This feature is inherent in all Kepco Transistorized Power Supplies and is derived from the Voltage Comparison Bridge Circuit*, pioneered by Kepco, Inc.

REGULATION: The regulation of a Power Supply is specified at its output terminals. When connecting these terminals to the load, the DC drop and reactance of the connecting wires must be considered in addition to the DC regulation and dynamic impedance of the Power Supply.

DC WIRE DROP: Since loads are connected by varying lengths and gauges of wire, the effect of wire loss must be considered particularly at higher currents. On page 37 of this catalog a Nomograph of Wire Loss is provided to assist in the selection of the proper wire size.

By use of the Remote Error Sensing feature of the power supply, optimum regulation can be achieved at the load by correcting for wire losses.

DYNAMIC IMPEDANCE: The source impedance presented to a load is a combination of the power supply's impedance and the distributed resistance, inductance, and capacitance of the load connecting leads. For very low frequency load currents, the connecting leads may present an insignificant reactive loss; however, as the frequency increases this loss increases and results in degraded regulation. Reducing wire lengths and applying by-pass capacitors at the load, are general solutions to this problem.

The significance of the power supply's dynamic impedance is apparent when several branch circuits are tied to the supply's terminals. A low source impedance is desirable in these cases to minimize cross-coupling between the various loads.

VENTILATION: Both convection cooled and forced air cooled equipment is listed in this catalog. Forced air cooling is used in high power units to insure reliable performance over the specified temperature ranges. It is furthermore, a significant advantage where the equipment is to be stacked, as in an enclosed cabinet rack.

With the LATERAL (side to side) ventilation design used in all KEPCO forced-air cooled units, a cabinet rack installation may require nothing more than venting perforations in the cabinet to encourage natural convection. When other highly dissipative equipment is installed within the same enclosure, a cabinet venting fan may be indicated to reduce the interior temperature to safe limits. The air movement created by the power supply fan may often be adequate to accomplish this cooling.

MAINTENANCE: Reduction of down time is an important consideration in power supply maintenance. Ease of access, and plug-in elements or circuit modules greatly reduce the servicing problem and contribute to a significant reduction in maintenance time.

RACK MOUNTING: Most models are equipped with front mounting panels designed to enable the unit to be mounted directly in a standard 19 inch rack or cabinet. The half-rack size bench models may be mounted with accessory rack adapters which are available to mount a single unit, or two units side by side. With the exception of some vacuum-tube units, all models come fully encased, suitable for portable or bench use.

SPECIAL SYSTEM CONNECTIONS: Over the years KEPCO has developed a series of unique power supply interconnections to satisfy our customer's requirements. Some examples are: slaved tracking in the parallel or series mode, complementary tracking, over-voltage and over-current load protection, etc. KEPCO engineers are available to study your specific power supply requirements towards recommending an optimum solution.

* PATENT NOTICE: Applicable Patent Nos. will be supplied on request

kepco®

GLOSSARY

OF POWER SUPPLY TERMS

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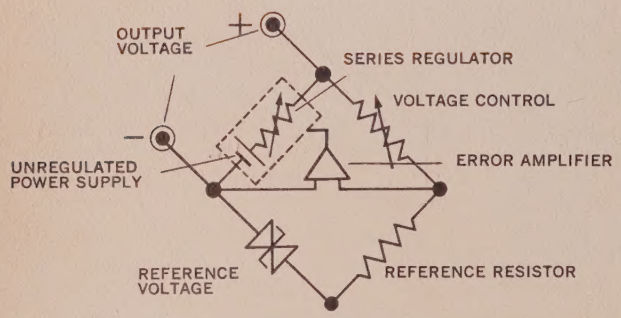
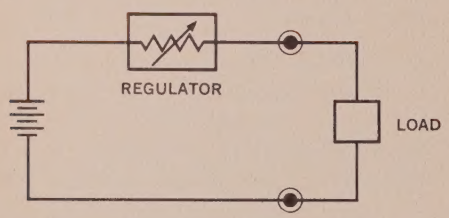


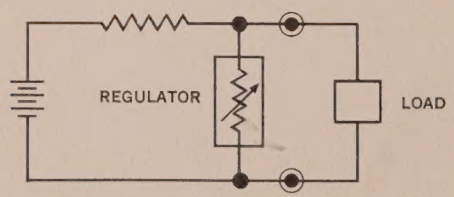
COMPARISON BRIDGE *

FIGURE 2



SERIES REGULATOR

FIGURE 3



SHUNT REGULATOR

AMBIENT OPERATING TEMPERATURE (range): The range of environmental temperatures in which a power supply can be safely operated. For units with forced air cooling, the temperature is measured at the air intake.

COMPARISON BRIDGE: A type of voltage comparison circuit whose configuration and principle of operation resemble a four-arm electrical bridge. (*See Figure 1*). The elements are so arranged that, assuming a balance exists in the circuit, a zero error signal is derived. Any tendency for the output voltage to change in relation to the reference voltage creates a corresponding error signal, which, by means of negative feedback is used to correct the output voltage in the direction toward restoring bridge balance.

This comparison bridge is capable of achieving better than .01% regulation and stability.

COMPLEMENTARY TRACKING: A system of interconnection of two regulated supplies in which one (the master) operates to control the other (the slave). The slave supply voltage is made equal (or proportional) to the master supply voltage and of opposite polarity with respect to a common point.

COMPLIANCE VOLTAGE (range): The output voltage range of a DC power supply operating in constant current mode. Compliance voltage is the voltage range required to sustain a given value of constant current throughout a range of load resistances.

CONSTANT CURRENT POWER SUPPLY: A Power Supply that is capable of maintaining a preset current through a variable load resistance. This is achieved by automatically varying the load voltage in order to maintain the ratio of load voltage to load resistance constant.

CONTROL RATIO: The required change in control resistance to produce a one volt change in the output voltage. The control ratio is expressed in *ohms per volt.*

CURRENT LIMITING (automatic): An overload protection mechanism which limits the maximum output current to a preset value, and automatically restores the output when the overload is removed. (See short circuit protection).

CURRENT SENSING RESISTOR: A resistor of low value placed in series with the load to develop a voltage proportional to the output current. A regulated DC power supply regulates the current in the load by regulating the voltage across this sensing resistor.

DRIFT: See Stability.

ERROR SIGNAL: The error signal is the output of the *voltage comparison circuit.* It is amplified to drive the series *Pass Elements.*

LINE REGULATION: The maximum amount that the output voltage will change as the result of a specified change in line voltage, usually for a step change between 105-125 volts, unless otherwise specified. (Regulation is given either as a percentage of the output voltage or as an absolute change, Δ V.)

* PATENT NOTICE: Applicable Patent numbers supplied on request

LOAD REGULATION: The maximum amount that the output voltage will change as the result of a specified change in output load current, generally from no-load to full-load unless otherwise specified. (Regulation is given either as a percentage of the output voltage or as an absolute change, △ V.)

OUTPUT IMPEDANCE: The effective dynamic output impedance of a power supply is derived from the ratio of the measured peak to peak change in output voltage to a measured peak to peak change in alternating load current. Output impedance is usually specified throughout the frequency range DC — 100 KC.

OVERSHOOT: A transient rise beyond regulated output voltage limits, occuring when the AC power input is turned on or off, and for line or load step changes.

OVERTEMPERATURE PROTECTION: A thermal relay circuit which turns off the power automatically should an over-temperature condition occur.

PARALLEL OPERATION: The output of two or more power supplies connected together so that their individual output currents are added and flow in a common load. In feedback controlled supplies, the control input to the pass elements of all of the supplies are connected in parallel, to be driven by a common error signal from one master control unit.

PASS ELEMENT: An automatic variable resistance device, either a vacuum tube or power transistor, in series with the source of DC power. The pass element is driven by the amplified error signal to increase its resistance when the output needs to be lowered or to decrease its resistance when the output must be raised. (See series regulator)

PROGRAMMING (by resistance): The control of any Power Supply function, such as output voltage or current, by the connection of an external or remotely located (variable) control resistance.

PROGRAMMING (by voltage): The control of any power supply function, such as output voltage or current by the connection of an external or remotely located variable voltage source. (See Complementary Tracking and Slaved Tracking).

RECOVERY TIME: Specifies the time required for the output voltage to return to a value within the regulation specification after a step load or line change. Recovery time, rather than response time, is the more meaningful way of specifying power supply performance since it relates to the regulation specification.

REMOTE ERROR SENSING: A means by which the regulator circuit senses the voltage directly at the load. This connection is used to compensate for voltage drop in the connecting wires.

RESPONSE TIME (Time Constant): Specifies the time required for the voltage excursion to be reduced to 37% of its peak value after a step load or line change.

RIPPLE: Stated either in peak-to-peak or in rms value, "ripple" specifies the maximum AC component that appears in a DC output. Unless specified separately, ripple includes unclassified noise.

SERIES OPERATION: The output of two or more power supplies connected together to obtain a total output voltage equal to the sum of their individual voltages. Load current is equal and common through each supply. The extent of series connection is limited by the maximum specified potential rating between any output terminal and ground.

SERIES REGULATOR: A device placed in series with a source of power that is capable of controlling the voltage or current output by automatically varying its series resistance. (*See Figure 2*).

SHORT CIRCUIT PROTECTION (automatic): Any automatic current limiting system which enables a power supply to continue operating at a limited current, and without damage, into any output overload including short circuits. The output voltage is restored to normal when the overload is removed, as distinguished from a fuse or circuit-breaker system which opens at overload and must be closed to restore power. (See current limiting).

SHUNT REGULATOR: A device placed across the output, which controls the current through a series dropping resistance to maintain a constant output. (*See Figure 3*).

SLAVED TRACKING: A system of interconnection of two or more regulated supplies in which one (the master) operates to control the others (the slaves). The output voltages of the slave units may be equal or proportional to the output voltage of the master unit. The slaved output voltages track the master output voltage in a constant ratio. (See Complementary Tracking).

STABILITY: The change in output voltage as a function of time, at constant line voltage, load and ambient temperature. (Sometimes referred to as drift).

STEP LINE VOLTAGE CHANGE: An instantaneous change in line voltage (e.g. 105-125 V AC); for measuring line regulation and transient response.

STEP LOAD CHANGE: An instantaneous change in load current (e.g. 0 to full load); for measuring the load regulation and transient response.

STORAGE TEMPERATURE: The range of environmental temperatures in which a power supply can be safely stored. (e.g. —20° C to +85° C).

TEMPERATURE COEFFICIENT: The % change in the output voltage as a result of a 1° C change in the ambient operating temperature (% per ° C).

VOLTAGE CORRECTOR: An active source of regulated power placed in series with an unregulated supply to sense changes in the output voltage (or current); and to correct for these changes by automatically varying its own output in the opposite direction, thereby maintaining the total output voltage constant.

VOLTAGE REFERENCE: A separate highly regulated voltage source used as a standard to which the output of the power supply is continuously referred.

WARM-UP TIME: The time (after power turn on) required for the output voltage to reach an equilibrium value within the stability specification.

kepco

ABC

REGULATED DC SUPPLY

GROUP

TRANSISTORIZED

- *voltage/current regulation*
- *full range programming*
- *laboratory or systems use*
- *versatile, compact design*

0.05% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE VOLTS	AMPS	OUTPUT IMPEDANCE OHMS MAX. (0-1KC)	(1KC-100KC)	INPUT AMPS, MAX.④
ABC 2-1M①	0-2	0-1.0	0.01	0.2	0.3
ABC 7.5-2M	0-7.5	0-2.0	0.002	.02	0.5
ABC 15-1M	0-15	0-1	.008	.08	0.5
ABC 30-0.3M	0-30	0-0.3	.05	.5	0.3
ABC 40-0.5M	0-40	0-0.5	.05	.4	0.5
ABC 200M②③	0-200	0-0.1	.5	2	0.5
ABC 1500M②	0-1500	0-0.005	70	70	0.5

① **TUNNEL DIODE SUPPLY:** Provided with millivolt resolution control.
② Hybrid Design: Transistorized with series pass vacuum tube.
③ 6.5 volts at 2 amps available at rear terminals.
④ At 125 volts input.

SPECIFICATIONS:
(FOR ALL MODELS)

REGULATION:
LINE: 0.05% for 105-125 v ac line change, at any output voltage within specified range.
LOAD: 0.05% or 1 mv*, whichever is greater, for NO-LOAD to FULL-LOAD change at any output voltage within specified range.
*10mv for ABC 200M, 50mv for ABC 1500M.

STABILITY:
Less than 0.05% or 3 mv, whichever is greater, over a period of 8 hours at constant ambient temperature.

RIPPLE:
Less than 0.5 millivolt rms.

RECOVERY TIME:
50 microseconds.

AMBIENT OPERATING TEMPERATURE:
−20°C to +50°C maximum.

INPUT REQUIREMENTS:
105-125 v ac, 50-440 cycles, maximum line current: 0.5 amps, for all models except ABC 2-1M and ABC 30-0.3M with max. line current of 0.3 amps.

TEMPERATURE COEFFICIENT:
Output voltage changes less than 0.05% per °C.

OUTPUT IMPEDANCE:
Specified separately for each model within the load frequency indicated in table.

TERMINALS and CONTROLS:
On front panel: DC output and ground termination. One-turn voltage control (10 turn on special order). AC input power on-off switch. Short-circuit current adjusting control. Meter selector switch.
On rear of unit: Barrier strip terminations for DC output and ground, remote output voltage control, remote error signal sensing, voltage calibration control, two screw terminal tie points for systems interconnection. Output terminals are isolated from the chassis, either positive or negative terminal may be grounded.

DIMENSIONS:
4¼"H x 8$\frac{5}{32}$" W x 9⅝" D (except for Models ABC 30-0.3M and ABC 2-1M which are 5⅝" D).

STANDARD FINISH:
Panel, etched aluminum—brushed and coated. Case, gray hammertone (special finishes to order.)

OPTIONAL FEATURES:
(FOR ALL MODELS)

METERS:
Model nos in table include Volt/Amp meter. To specify unmetered unit, delete suffix "M" from model no. (e.g. ABC 3-0.3 for unit without meter).
Model ABC 1500M includes Voltmeter only. For unmetered unit, delete suffix "M"

RACK MOUNTING:
Rack Mounting Adapter (5¼" high x 19" wide) available at $15.00 additional.
Model RA-4: for mounting 2 units side by side.
Model RA-5: for mounting single unit.

SPECIAL PACKAGING:
On application.

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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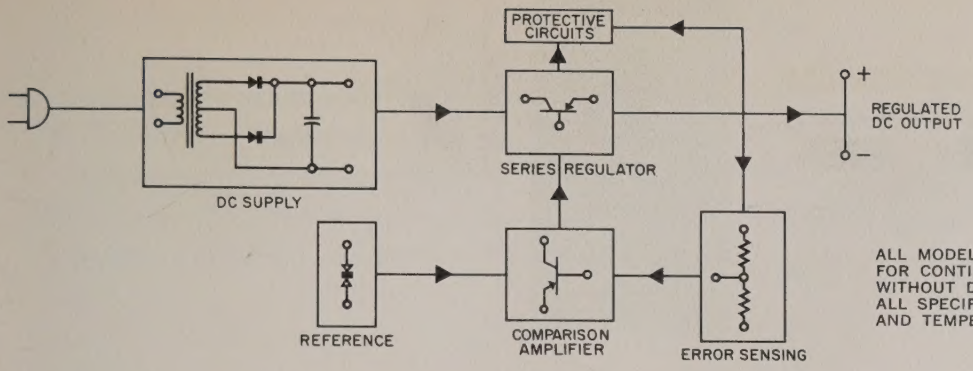


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.

PERFORMANCE FEATURES:

CURRENT LIMIT CONTROL:

A one-turn control provides adjustable current limiting from 10 to 135% of rated full-load current as a standard feature for all models except ABC 1500M.

SHORT CIRCUIT PROTECTION:

Unique circuitry enables continuous operation into a short circuit without the aid of fuses, circuit breakers, or relays. Unit returns instantly to operating voltage when overload is removed.

REMOTE PROGRAMMING:

Special terminations enable voltage control from remote location at 1000 ohms per volt, without internal modification. (See pages 26 and 27).

REMOTE ERROR SENSING:

Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads. Available on all models except ABC 200M and ABC 1500M.

CONSTANT CURRENT OPERATION:

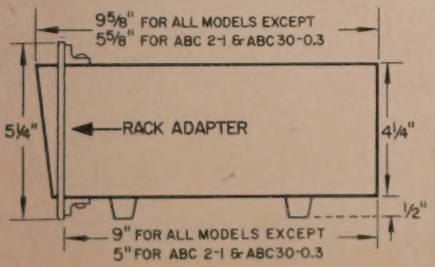
Special terminal board connections enable constant current mode of operation without internal modification (See pages 26 and 27).

NO VOLTAGE OVERSHOOT:

No output voltage overshoot from turn-on, turn-off or power failure.

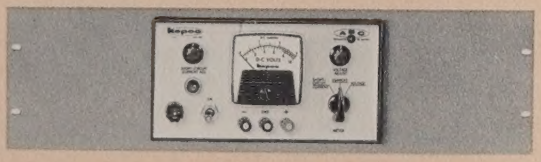
SERIES CONNECTION:

Units can be connected in series up to 300 v between chassis and either output terminal; up to 600 v for ABC 1500M.

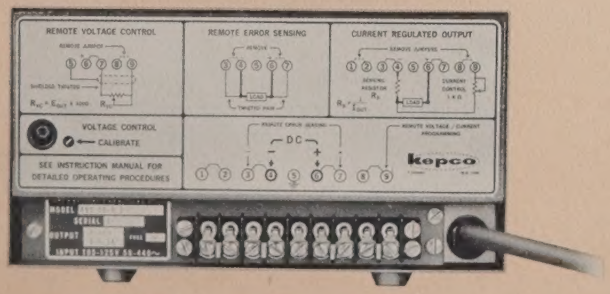


Model ABC 30-0. 3M

TYPICAL ASSEMBLY IN MODEL RA-4 RACK ADAPTER



TYPICAL ASSEMBLY IN MODEL RA-5 RACK ADAPTER



TYPICAL REAR VIEW SHOWING ACCESSIBLE TERMINAL BLOCK WITH SIMPLIFIED CONNECTION GUIDE.

kepco

K S

REGULATED DC SUPPLY

GROUP

TRANSISTORIZED

- *dual precision regulation*
- *high current*
- *full range programming*
- *voltage/current regulation*
- *versatile, compact design*

IMPROVED SPECIFICATIONS!

REGULATION: LINE: 0.01%
LOAD: 0.01% or 1 mv.

STABILITY: 0.01% or 3 mv

TEMPERATURE COEFFICIENT: 0.01% per ° C

0.05% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE VOLTS	DC OUTPUT RANGE AMPS	OUTPUT IMPEDANCE OHMS MAX. 0-1KC	(1KC-10KC)	(10KC-100KC)	INPUT WATTS, MAX.	INPUT AMPS, MAX.*
KS 8-100M	0-8	100	0.001	0.02	0.1	1400	24
KS 18-50M	0-18	50	0.002	0.02	0.1	1400	24
KS 36-30M	0-36	30	0.003	0.03	0.1	1400	24
KS 60-20M	0-60	20	0.005	0.05	0.1	1500	26

* At 125 volts input.

SPECIFICATIONS:
(FOR ALL MODELS)

REGULATION:
LINE: Less than 0.05% for 105-125 v ac line change, at any output voltage within specified range.
LOAD: Less than 0.05% or 3 mv, whichever is greater for NO-LOAD to FULL-LOAD change, at any output voltage within specified range.

STABILITY:
Less than 0.05% or 6 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

RIPPLE:
Less than 1 millivolt rms.

OUTPUT IMPEDANCE:
See table. Maximum specification given for each model over the load frequency range indicated.

AMBIENT OPERATING TEMPERATURE:
– 20°C to +50°C maximum. Protective circuit turns unit "OFF" should over-temperature condition occur. Reset with panel circuit breaker.

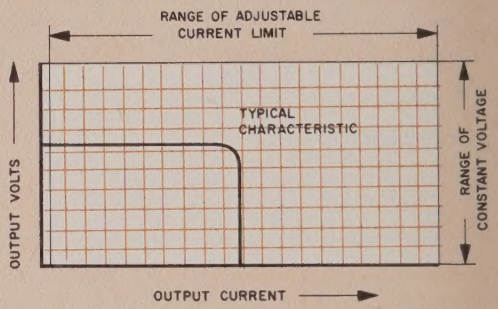
TEMPERATURE COEFFICIENT:
Output voltage changes less than 0.05% per °C over specified ambient temperature range.

RECOVERY TIME:
50 microseconds.

INPUT REQUIREMENTS:
115/208/230 Volts, 50-65 cps

PERFORMANCE FEATURES:
(FOR ALL MODELS)

CURRENT LIMIT CONTROL:
Panel control enables automatic crossover from constant voltage to preset constant current limit from 2% to 100% of maximum specified current. (See diagram). The constant current limit is maintained to within 0.5% of maximum specified current.



OVERTEMPERATURE PROTECTION:
Thermal relay circuit turns off power automatically should an Over-temperature condition occur; reset by panel circuit breaker.
Forced Air Cooling: Lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

REMOTE OUTPUT VOLTAGE CONTROL:
Accessible terminals at rear of unit enable external voltage control at a control ratio of 100 ohms/volt. See pages 26 and 27.

CONSTANT CURRENT OPERATION:
External connections may be used to regulate current. See pages 26 and 27.

REMOTE ERROR SIGNAL SENSING:
Additional "sensing" terminals enable specified regulation to be maintained at remote load, compensating for voltage drop across load supply leads.

SERIES CONNECTION:
Units can be connected in series up to 400 v between chassis and either output terminal.

NO VOLTAGE OVERSHOOT:
No output voltage overshoot from turn-on, turn-off or power failure.

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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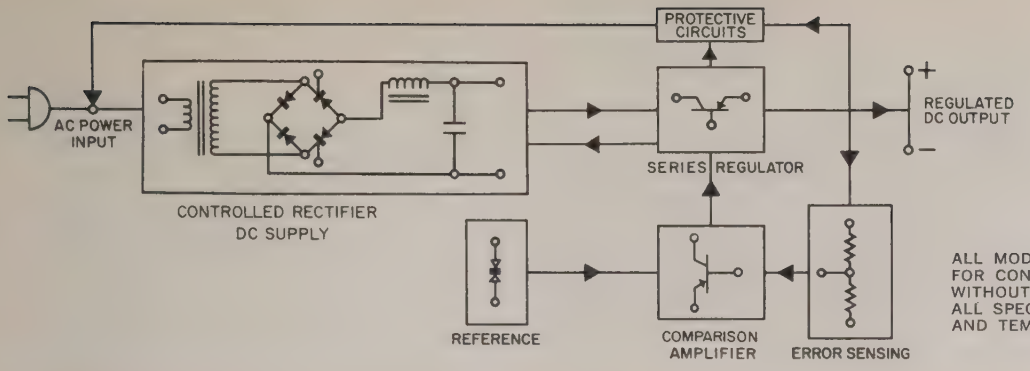


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.

Model KS 36-30M

PHYSICAL SPECIFICATIONS:

METERS:

Model nos. in table include voltmeter and ammeter; to specify "unmetered" unit delete suffix "M" from model no. (e.g. Model KS 60-20 for unit without meters).

TERMINALS AND CONTROLS:

On front panel: Continuously variable 10 turn voltage control and 10 turn constant current limit control. Power on-off circuit breaker.

On rear of chassis: Power input, 3-terminal barrier strip. DC output and ground. Programming and remote error sensing terminals. Terminals for remote constant current limit control.

All output terminals isolated from chassis; either positive or negative may be grounded.

DIMENSIONS:

8¾" H x 19" W x 20" D (behind front panel).

WEIGHT:

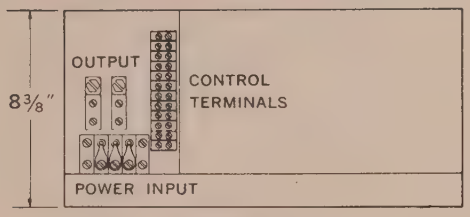
135 lbs.

MODULAR SUB-ASSEMBLIES:

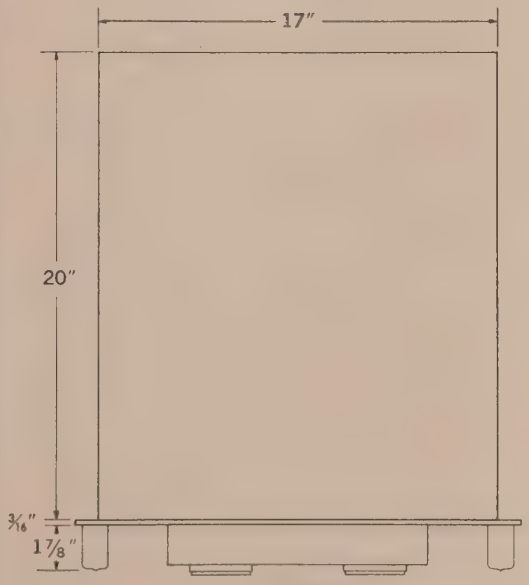
All transistors plug in.

STANDARD FINISH:

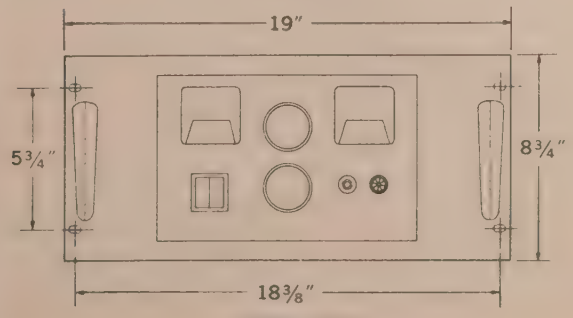
Gray hammertone (special finishes to order).



REAR VIEW



TOP VIEW



FRONT VIEW

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KO

REGULATED DC SUPPLY

GROUP

TRANSISTORIZED

- *high current*
- *programmable*
- *voltage/current regulation*
- *versatile, compact design*

1% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE VOLTS	AMPS	RIPPLE RMS	INPUT WATTS, MAX.	INPUT AMPS, MAX.*
KO 12-100M	0-12	100	0.3% or 10 mv†	1700	24
KO 25-50M	0-25	50	0.3% or 20 mv†	1700	24
KO 45-30M	0-45	30	0.3% or 40 mv†	1700	24
KO 70-20M	0-70	20	0.3% or 60 mv†	1700	24

* At 125 volts input

† (Whichever is greater)

SPECIFICATIONS:
(FOR ALL MODELS)

REGULATION:
LINE: Less than 1% for 105-125 v ac line change at any output voltage within specified range.
LOAD: Less than 1% or 50 mv, whichever is greater, for NO-LOAD to FULL-LOAD change, at any output voltage within specified range.

STABILITY:
Less than 1% or 50 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

RIPPLE:
See table for maximum specification applicable to each model.

AMBIENT OPERATING TEMPERATURE:
−20°C to +55°C maximum. Protective circuit turns unit "OFF" should over-temperature condition occur. Reset with panel circuit breaker.

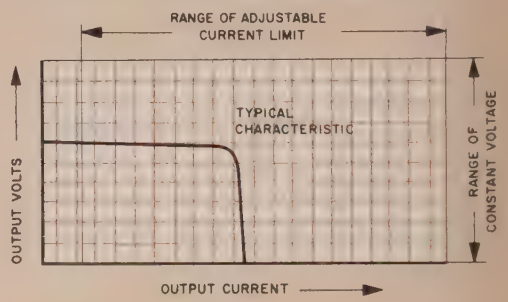
TEMPERATURE COEFFICIENT:
Output voltage changes less than 0.05% per °C over specified ambient temperature range.

RECOVERY TIME:
LOAD ON: 0 to 100% load, 50 milliseconds; amplitude of voltage dip less than 5% of maximum supply voltage.
LOAD OFF: 100% to 10% load, 50 milliseconds; amplitude of voltage overshoot less than 5% of maximum supply voltage.

INPUT REQUIREMENTS:
115/208/230 volts, 50-65 cps.

PERFORMANCE FEATURES:
(FOR ALL MODELS)

CURRENT LIMIT CONTROL:
Panel control enables automatic crossover from constant voltage to preset constant current limit from 10% to 100% of maximum specified current. (See diagram). The constant current limit is maintained to within 2% of maximum specified current.



OVERTEMPERATURE PROTECTION:
Thermal relay circuit turns off power automatically should an over-temperature condition occur; reset by panel circuit breaker.
Forced-Air cooling: Lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

REMOTE OUTPUT VOLTAGE CONTROL:
Accessible terminals at rear of unit enable external voltage control at a control ratio of 100 ohms/volt.

REMOTE ERROR SENSING:
Additional "sensing" terminals enable specified regulation to be maintained at remote load, compensating for voltage drop across load supply leads.

SERIES CONNECTION:
Units can be connected in series up to 400 v between chassis and either output terminal.

NO VOLTAGE OVERSHOOT:
No output voltage overshoot from turn-on, turn-off or power failure.

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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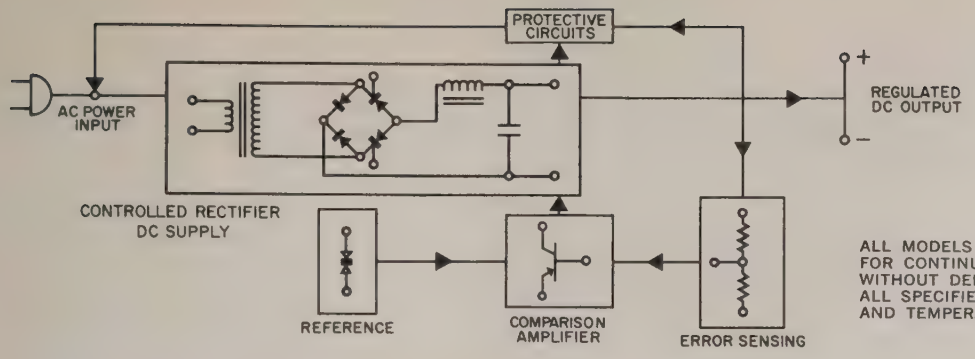


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.

Model KO 45-30M

PHYSICAL SPECIFICATIONS:
(FOR ALL MODELS)

METERS:
Model nos. in table include voltmeter and ammeter; to specify "unmetered" unit delete suffix "M" from model no. (e.g. Model KO 70-20 for unit without meters).

TERMINALS AND CONTROLS:
On front panel: Continuously variable 10-turn control and 10 turn current limit control. Power on-off circuit breaker.

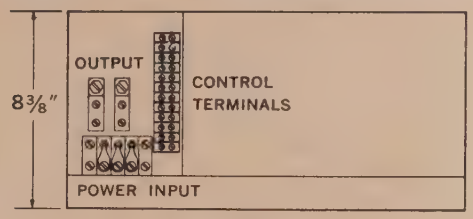
On rear of chassis: Power input, 3-terminal barrier strip. DC output and ground. Programming and remote error sensing terminals. Terminals for remote constant current limit control. All output terminals isolated from chassis; either positive or negative output may be grounded.

DIMENSIONS:
8¾" H x 19" W x 20" D (behind front panel).

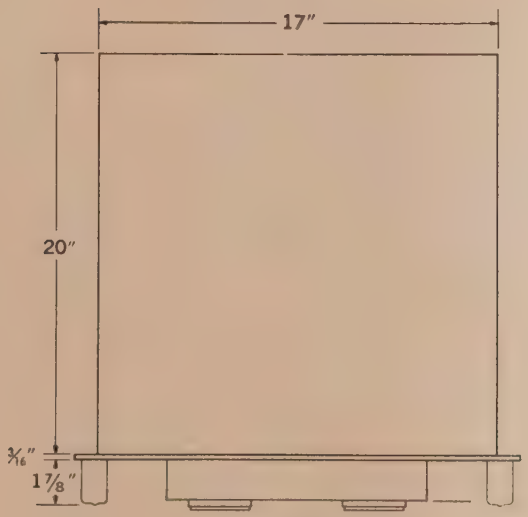
WEIGHT:
125 lbs.

MODULAR SUB-ASSEMBLIES:
All transistors plug in.

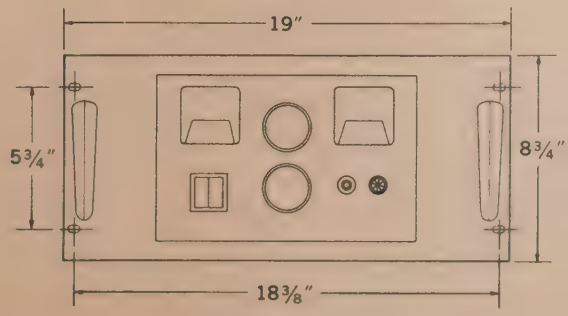
STANDARD FINISH:
Gray hammertone (special finishes to order).



REAR VIEW



TOP VIEW



FRONT VIEW

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SM

REGULATED DC SUPPLY

GROUP

TRANSISTORIZED

- *wide voltage range*
- *high current*
- *dual regulator*
- *minimum regulator dissipation*

0.1% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE VOLTS	AMPS	OUTPUT IMPEDANCE OHMS MAX. (DC-1KC)	(1KC-100KC)	DIMENSIONS H"	W"	D"*
SM 14-7M	0–14	0–7	0.002	0.02	3½	19	13⅞
SM 14-15M	0–14	0–15	0.001	0.01	5¼	19	13⅞
SM 14-30M	0–14	0–30	0.001	0.01	8¾	19	13⅞
SM 36-5M	0–36	0–5	0.01	0.1	3½	19	13⅞
SM 36-10M	0–36	0–10	0.005	0.05	5¼	19	13⅞
SM 36-15M	0–36	0–15	0.003	0.03	8¾	19	13⅞
SM 75-2M	0–75	0–2	0.04	0.4	3½	19	13⅞
SM 75-5M	0–75	0–5	0.02	0.2	5¼	19	13⅞
SM 75-8M	0–75	0–8	0.01	0.1	8¾	19	13⅞
SM 160-1M	0–160	0–1	0.2	1.0	3½	19	13⅞
SM 160-2M	0–160	0–2	0.1	0.6	5¼	19	13⅞
SM 160-4M	0–160	0–4	0.04	0.4	8¾	19	13⅞
SM 325-0.5M	0-165-325	0–0.5	0.7	3.0	3½	19	13⅞
SM 325-1M	0–325	0–1	0.4	2.0	5¼	19	13⅞
SM 325-2M	0–325	0–2	0.2	1.0	8¾	19	13⅞

0.01% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE VOLTS	AMPS	OUTPUT IMPEDANCE OHMS MAX. (DC-1KC)	(1KC-100KC)	DIMENSIONS H"	W"	D"*
SM 14-7MX	0–14	0–7	0.002	0.02	3½	19	13⅞
SM 14-15MX	0–14	0–15	0.001	0.01	5¼	19	13⅞
SM 14-30MX	0–14	0–30	0.001	0.01	8¾	19	13⅞
SM 36-5MX	0–36	0–5	0.01	0.1	3½	19	13⅞
SM 36-10MX	0–36	0–10	0.005	0.05	5¼	19	13⅞
SM 36-15MX	0–36	0–15	0.003	0.03	8¾	19	13⅞
SM 75-2MX	0–75	0–2	0.04	0.4	3½	19	13⅞
SM 75-5MX	0–75	0–5	0.02	0.2	5¼	19	13⅞
SM 75-8MX	0–75	0–8	0.01	0.1	8¾	19	13⅞
SM 160-1MX	0–160	0–1	0.2	1.0	3½	19	13⅞
SM 160-2MX	0–160	0–2	0.1	0.6	5¼	19	13⅞
SM 160-4MX	0–160	0–4	0.04	0.4	8¾	19	13⅞
SM 325-0.5MX	0-165-325	0–0.5	0.7	3.0	3½	19	13⅞
SM 325-1MX	0–325	0–1	0.4	2.0	5¼	19	13⅞
SM 325-2MX	0–325	0–2	0.2	1.0	8¾	19	13⅞

*Depth behind panel

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

SPECIFICATIONS: (FOR ALL MODELS)

REGULATION:

For 0.1% Models:

LINE: Less than 0.1% for 105-125 v ac line change, at any output voltage within specified range.

LOAD: Less than 0.1% or 3 mv, whichever is greater, for NO-LOAD to FULL-LOAD change, at any output voltage within specified range.

For 0.01% Models:

LINE: Less than 0.01% for 105-125 v ac line change, at any output voltage within specified range.

LOAD: Less than 0.01% or 1 millivolt, whichever is greater, for NO-LOAD to FULL-LOAD change, at any output voltage within specified range.

STABILITY:

For 0.1% Models:

Less than 0.1% or 6 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

For 0.01% Models:

Less than 0.01% or 2 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

RIPPLE:

Less than 1 millivolt rms.

OUTPUT IMPEDANCE:

See table. Maximum specification given for each model over the load frequency range indicated.

AMBIENT OPERATING TEMPERATURE:

−20°C to +50°C maximum. Protective circuit turns unit "OFF" should over-temperature condition occur. Reset with power ON-OFF switch.

TEMPERATURE COEFFICIENT:

For 0.1% Models:

Output voltage changes less than 0.05% per °C over specified ambient temperature range.

For 0.01% Models:

Output voltage changes less than 0.01% per °C over specified ambient temperature range.

RECOVERY TIME:

50 microseconds.

INPUT REQUIREMENTS:

105-125 v ac, 60 ±1 cps. Unit operates within regulation specification for line frequency changes of 57-63 cps (except 325 volt models).

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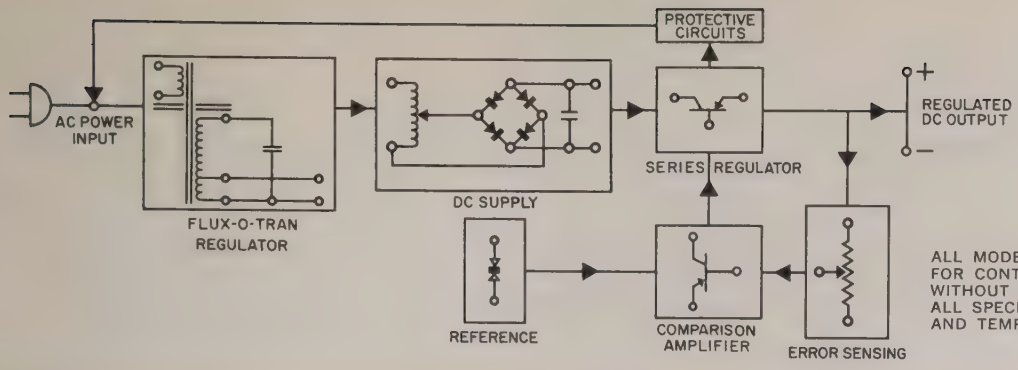


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.

PHYSICAL SPECIFICATIONS:

METERS:

Model nos. in table include voltmeter and ammeter; to specify "unmetered" unit delete suffix "M" from model no. (e.g. Model SM 160-1 for 0.1% regulation unit without meters).

TERMINALS and CONTROLS:

On front panel: DC output and ground (5-way terminals). Five-turn continuously variable voltage control. Power on-off switch. Range switch on SM 325-0.5M.
On rear of chassis: DC output and ground (5-way terminals). Remote error sensing terminals.
All output terminals isolated from chassis; either positive or negative output may be grounded.

INPUT CONNECTOR:

At rear of unit: three-wire safety ground line cord.

MODULAR SUB-ASSEMBLIES:

All transistors plug in.

STANDARD FINISH:

Gray hammertone (special finishes to order).

PERFORMANCE FEATURES:
(For All Models)

OVERLOAD PROTECTION:

Special power transformers allow output to be shorted without damage to unit. Dissipation requirements of series regulator actually reduced under overload. Ideal for lighting lamps and charging capacitive loads.

OVERTEMPERATURE PROTECTION:

Thermal relay circuit turns off power automatically should an over-temperature condition occur; reset by power ON-OFF switch.

Forced-air cooling: Lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

REMOTE ERROR SENSING:

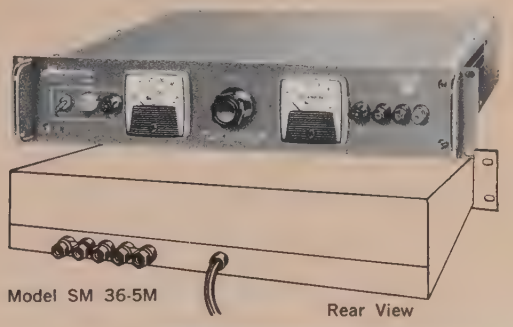
Additional "sensing" terminals enable specified regulation to be maintained at remote load, compensating for voltage drop across load supply leads.

SERIES CONNECTION:

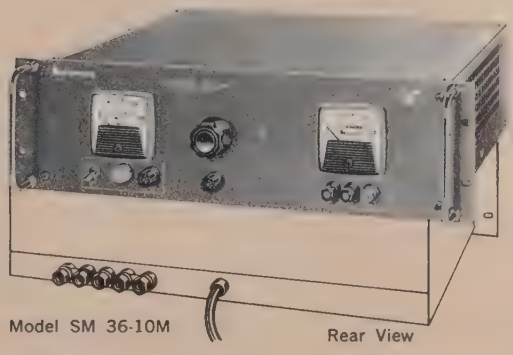
Units can be connected in series up to 400 v between chassis and either output terminal.

NO VOLTAGE OVERSHOOT:

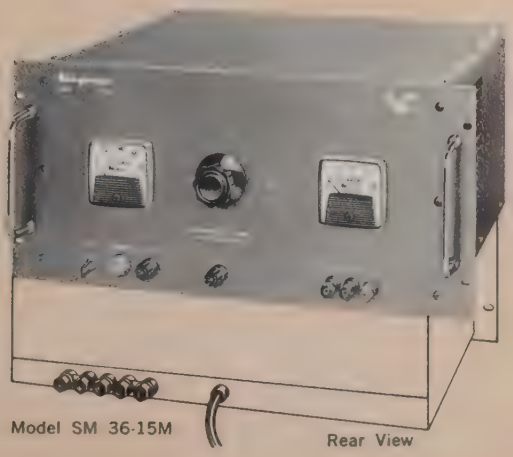
No output voltage overshoot from turn-on, turn-off or power failure.



Model SM 36-5M Rear View



Model SM 36-10M Rear View



Model SM 36-15M Rear View

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SC REGULATED DC SUPPLY GROUP

TRANSISTORIZED

- *voltage/current regulation*
- *full range programming*

0.1% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE		OUTPUT IMPEDANCE OHMS MAX.		DIMENSIONS		
	VOLTS	AMPS	(DC–1 KC)	(1 KC–100 KC)	H	W	D*
SC 18-0.5M	0–18	0–0.5	.04	.4	4¼″	8³⁄₃₂″	13⅝″
SC 18-1M	0–18	0–1	.02	.2	4¼″	8³⁄₃₂″	13⅝″
SC 18-2M	0–18	0–2	.01	.1	4¼″	8³⁄₃₂″	13⅝″
SC 18-4M	0–18	0–4	.005	.05	3½″	19″	13″
SC 33-5M	0–33	0–5	005	.05	5¼″	19″	13″
SC 36-0.5M	0–36	0–0.5	.08	.8	4¼″	8³⁄₃₂″	13⅝″
SC 36-1M	0–36	0–1	.04	.4	4¼″	8³⁄₃₂″	13⅝″
SC 36-2M	0–36	0–2	.02	.2	3½″	19″	13″
SC 3672-0.5M	36–72	0–0.5	.15	1.0	4¼″	8³⁄₃₂″	13⅝″
SC 3672-1M	0–36–72	0–1	.08	.8	3½″	19″	13″

*Depth behind panel

SPECIFICATIONS:

(For All Models)

REGULATION:

LINE: Less than 0.1% for 105-125 v ac line change at any voltage in the specified output range.

LOAD: Less than 0.1% or 3 mv, whichever is greater, for 0 to maximum load change at any voltage in the specified output range.

STABILITY:

Less than 0.1% or 6 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

RIPPLE:

Less than 1 millivolt rms.

RECOVERY TIME:

50 microseconds.

OUTPUT IMPEDANCE:

Specified separately for each model within the load frequency range indicated in table.

AMBIENT OPERATING TEMPERATURE:

−20°C to +50°C maximum. Protective circuit turns unit "off" should an over-temperature condition occur. Reset with power on-off switch.

Forced-air cooling: Lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.05% per °C.

TERMINALS and CONTROLS:

On front panel:—DC output, ground termination; one-turn voltage control (10-turn on special order). AC input power on-off switch. Voltage range switch on SC 3672-1M.

On rear of unit:—DC output and ground, remote output voltage control and remote error signal sensing terminations on terminal board. Current limit control.

Output terminals are isolated from the chassis. Either positive or negative output terminal may be grounded.

INPUT REQUIREMENTS:

105-125 v ac, 50-65 cycles (400 cycle units available).

METERS:

Model nos. in table include voltmeter and ammeter; to specify "unmetered" unit, delete suffix "M" from model no. (e.g. SC 18-4 for unit without meters).

DIMENSIONS:

See table for specifications of each model.

STANDARD FINISH:

Gray hammertone (special finishes to order).

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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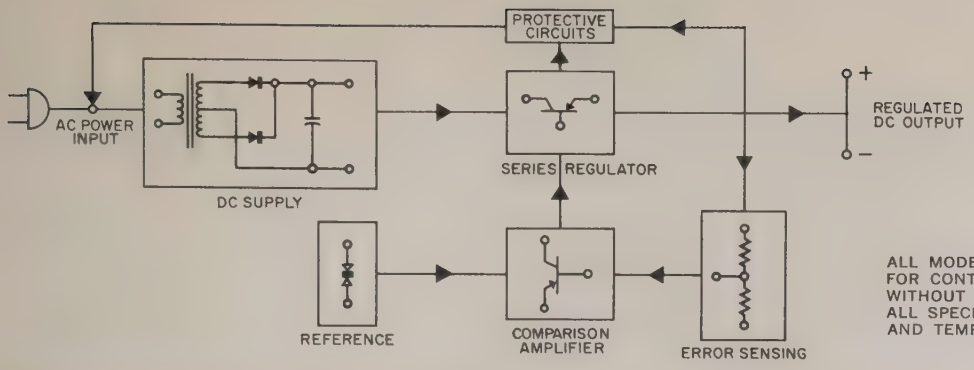


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.

FEATURES:
(FOR ALL MODELS)

CURRENT LIMIT CONTROL:
All models in this design group are factory set to automatically limit at 120% of rated full-load current. A one-turn control provides adjustable current limiting from 10 to 120% of rated full-load current as a standard feature for all models except SC 3672-1 and SC 3672-0.5.

SHORT CIRCUIT PROTECTION:
Unique circuitry enables continuous operation into a short circuit without the aid of fuses, circuit breakers, or relays. Unit returns instantly to operating voltage when overload is removed. Ideal for lighting lamps and charging capacitive loads.

REMOTE OUPUT VOLTAGE CONTROL:
Special terminations enable voltage control from remote location at 1000 ohms per volt, without internal modification (See pages 26 and 27).

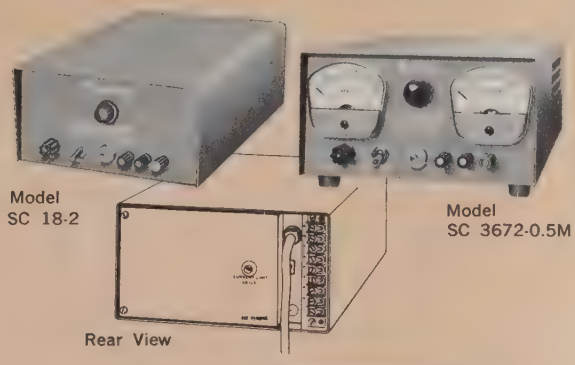
REMOTE ERROR SENSING:
Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads.

CONSTANT CURRENT OPERATION:
Special terminal board connections enable constant current mode of operation without internal modification (See pages 26 and 27).

NO VOLTAGE OVERSHOOT:
No output voltage overshoot from turn-on, turn-off or power failure.

SERIES CONNECTION:
Units can be connected in series up to 400 v between chassis and either output terminal.

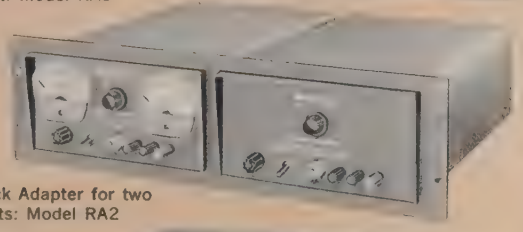
OPTIONAL FEATURES:
Meters optional; for unmetered units delete suffix "M" from Model No. in table.
Rack Mounting Adapter (5¼"H x 19"W) for 4¼"H x 8$\frac{3}{32}$"W Models:
Model RA-2: for mounting 2 units side by side.
Model RA-3: for mounting single unit.

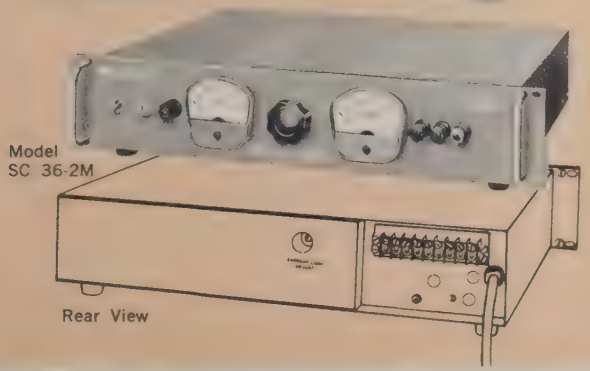

Model SC 18-2

Model SC 3672-0.5M

Rear View

Rack Adapater for single unit: Model RA3


Rack Adapter for two units: Model RA2


Model SC 36-2M

Rear View

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SC REGULATED DC SUPPLY GROUP

TRANSISTORIZED

- *precision regulator*
- *full range regulation*

0.01% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE VOLTS	AMPS.	OUTPUT IMPEDANCE OHMS MAX. (DC–1 KC)	(1 KC–100 KC)	DIMENSIONS H	W	D•
SC 32-0.5*	0–32	0–0.5	0.02	0.2	3½″	19″	13″
SC 32-1*	0–32	0–1	0.01	0.1	3½″	19″	13″
SC 32-1.5*	0–32	0–1.5	0.01	0.1	3½″	19″	13″
2SC 32-1.5*	0–32	0–1.5	0.01	0.1	7″	19″	13″
Dual Output	0–32	0–1.5	0.01	0.1			
SC 32-2.5*	0–32	0–2.5	0.01	0.1	3½″	19″	13″
SC 32-5*	0–32	0–5	0.005	0.05	5¼″	19″	13″
SC 32-10A	0–32	0–10	0.001	0.01	8¾″	19″	14⅜″
SC 32-15A	0–32	0–15	0.001	0.01	8¾″	19″	14⅜″
SC 60-2	0–60	0–2	0.01	0.1	5¼″	19″	13″
SC 60-5	0–60	0–5	0.005	0.05	8¾″	19″	14⅜″
2SC 100-0.2*	0–100	0–0.2	0.1	1.0	5¼″	19″	13″
Dual Output	0–100	0–0.2	0.1	1.0			
SC 150-1	0–150	0–1	0.05	0.5	5¼″	19″	13″
SC 300-1	0–300	0–1	0.1	1.0	8¾″	19″	14⅜″

* PROGRAMMABLE MODELS

• Depth behind panel

SPECIFICATIONS:
(FOR ALL MODELS)

REGULATION:

LINE: Less than 0.01% for 105-125 v ac line change at any voltage in the specified output range.

LOAD: Less than 0.01% or 2 millivolts, whichever is greater, for 0 to maximum load change at any voltage in the specified output range.

STABILITY:

Less than 0.01% or 2 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

RIPPLE:

Less than 1 millivolt rms.

RECOVERY TIME:

50 microseconds.

OUTPUT IMPEDANCE:

Specified separately for each model within the load frequency range indicated in table.

AMBIENT OPERATING TEMPERATURE:

−20°C to +50°C maximum. Protective circuit turns unit "off" should an over-temperature condition occur. Reset with power on-off switch.

Forced-air cooling: Lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.01% per °C.

TERMINALS and CONTROLS:

On front panel:—Terminations for DC output and ground, 10-turn voltage control, AC input power on-off switch.

On rear of unit:—Terminations for DC output and ground, remote output voltage control,* and remote error signal sensing. One-turn current limit control. Output terminals are clearly marked and isolated from chassis. Either positive or negative terminal may be grounded.

INPUT REQUIREMENTS:

105-125 v ac , 50-65 cycles. (400 cycle units available.)

METERS:

Ammeter and voltmeter included as standard equipment for each model in this design group. 2% accuracy, full scale.

VOLTAGE CONTROL RESOLUTION:

10-turn; resolution 0.01% of maximum rated output voltage; variable over full output range.

DIMENSIONS:

See table for rack mounting dimensions.

STANDARD FINISH:

Gray hammertone (special finishes tc order).

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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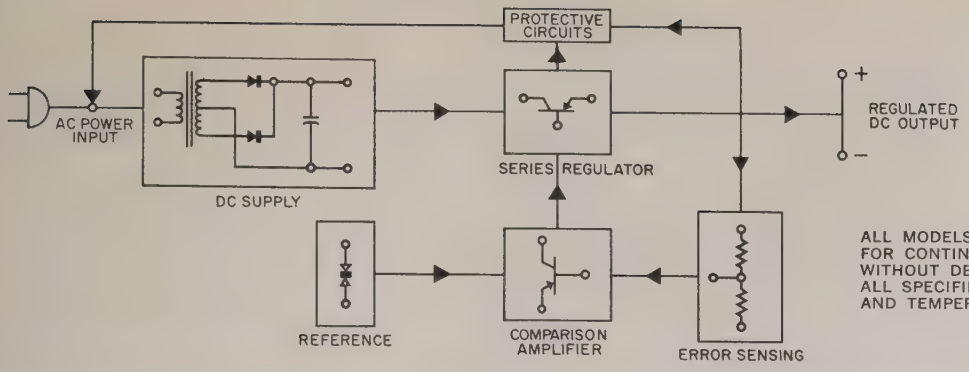


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.

FEATURES: (FOR ALL MODELS)

CURRENT LIMIT CONTROL:

All models in this design group are factory set to automatically limit at 120% of rated full-load current. A one-turn control provides adjustable current limiting from 10 to 120% of rated full-load current as a standard feature for all 0-32 volt models, except Models SC 32-10A and SC 32-15A.

SHORT CIRCUIT PROTECTION:

Unique circuitry allows continuous operation into a short circuit without the aid of fuses, circuit breakers or relays. Unit returns instantly to operating voltage when overload is removed. Ideal for lighting lamps and charging capacitive loads.

REMOTE OUTPUT VOLTAGE CONTROL:

Special terminations on terminal board enable voltage control from remote location at approximately 300 ohms/volt as standard feature for models SC 32-0.5, SC 32-1, 2SC 32-1.5, SC 32-1.5, SC 32-2.5, SC 32-5, and 2SC 100-0.2 (See pages 26 and 27).

REMOTE ERROR SIGNAL SENSING:

Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads.

CONSTANT CURRENT OPERATION:

Special terminal board connections enable constant current mode of operation without internal modification. Available only for Models SC 32-0.5, SC 32-1, SC 32-1.5, 2SC 32-1.5, SC 32-2.5, SC 32-5, and 2SC 100-0.2 in this design group (See pages 26 and 27).

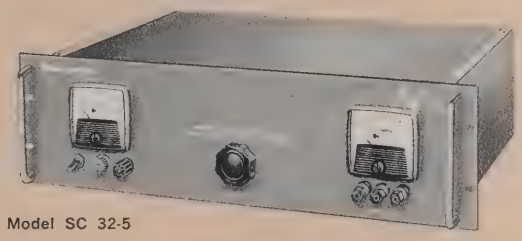
SERIES CONNECTION:

Units can be connected in series up to 400 v between chassis and either output terminal.

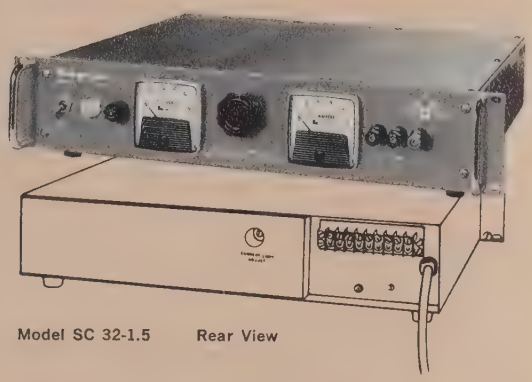
NO VOLTAGE OVERSHOOT:

No output voltage overshoot from turn-on, turn-off or power failure.

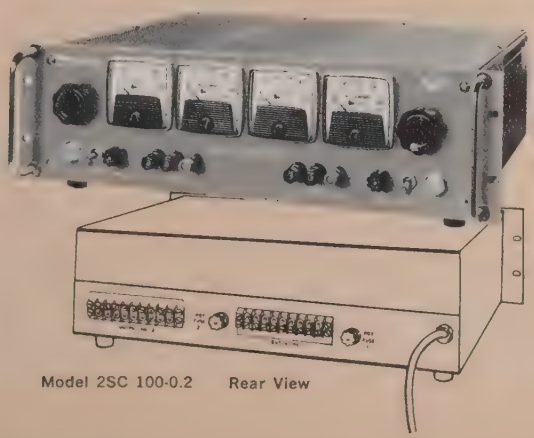
- High efficiency.
- Continuously adjustable output voltage
- No voltage range switching
- Suitable for square wave pulsed loading.
- Compact, suitable for rack mounting or bench use
- Low heat dissipation; forced air cooling.



Model SC 32-5



Model SC 32-1.5 Rear View



Model 2SC 100-0.2 Rear View

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PSC

REGULATED DC SUPPLY

GROUP

TRANSISTORIZED

- *modular package*
- *precision regulator*

0.02% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE VOLTS	AMPS	OUTPUT IMPEDANCE OHMS MAX. (DC–1 KC)	(1 KC–100 KC)
PSC 5-2	0–7.5	0-2	0.01	0.1
PSC 10-2	7.5–12.5	0-2	0.01	0.1
PSC 15-2	12.5–17.5	0-2	0.01	0.1
PSC 20-2	17.5–22.5	0-2	0.01	0.1
PSC 28-1	22.5–32.5	0-1	0.01	0.1
PSC 38-1	32.5–42.5	0-1	0.01	0.1

SPECIFICATIONS: (FOR ALL MODELS)

REGULATION:

LINE: Less than 0.02% for 105-125 v ac line change at any voltage in the specified output range.

LOAD: Less than 0.02% or 2 millivolts, whichever is greater, for 0 to maximum load change at any voltage in the specified output range.

STABILITY:

Less than 0.02% or 4 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

RIPPLE:

Less than 1 millivolt rms.

AMBIENT OPERATING TEMPERATURE:

−20°C to +50°C.

Forced-air cooling: lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

TERMINALS and CONTROLS:

On base plate — Barrier strip terminals for AC INPUT, DC OUTPUT and GROUND, REMOTE VOLTAGE CONTROL, REMOTE ERROR SENSING, VOLTAGE CONTROL (accessible through port in base plate). 25-turn pot continuously variable over full output range.

Output terminals are isolated from the chassis. Either positive or negative output terminal may be grounded.

OUTPUT IMPEDANCE:

See table. Maximum specification given for each model over the load frequency range indicated.

RECOVERY TIME:

50 microseconds.

TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.01% per °C.

INPUT REQUIREMENTS:

105-125 v ac, 50-65 cycles (400 cycle units also available.)

DIMENSIONS:

5¼″ x 5¼″ x 12¼″.

STANDARD FINISH:

Gray hammertone (special finishes to order).

FEATURES: (FOR ALL MODELS)

CURRENT LIMIT CONTROL:

One-turn control can be set to establish automatic current limiting at any value from 10 to 120% of rated full load. Maximum current limit is factory set at 120% of rated full load.

SHORT CIRCUIT PROTECTION:

Unique circuitry enables continuous operation into a short circuit without the aid of fuses, circuit breakers, or relays. Unit returns instantly to operating voltage when overload is removed. Ideal for lighting lamps and charging capacitive loads.

REMOTE OUTPUT VOLTAGE CONTROL:

Special terminations enable voltage control from remote location at approximately 1000 ohms per volt, without internal modification (See pages 26 and 27).

REMOTE ERROR SIGNAL SENSING:

Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads.

CONSTANT CURRENT OPERATION:

Special terminal board connections enable constant current mode of operation without internal modification (See pages 26 and 27).

SERIES CONNECTION:

Units can be connected in series up to 400 v between chassis and either output terminal.

NO VOLTAGE OVERSHOOT:

No output voltage overshoot from turn-on, turn-off or power failure.

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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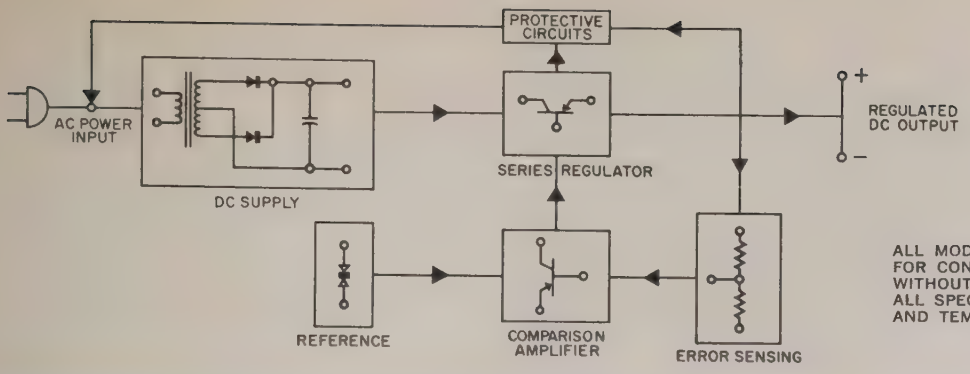
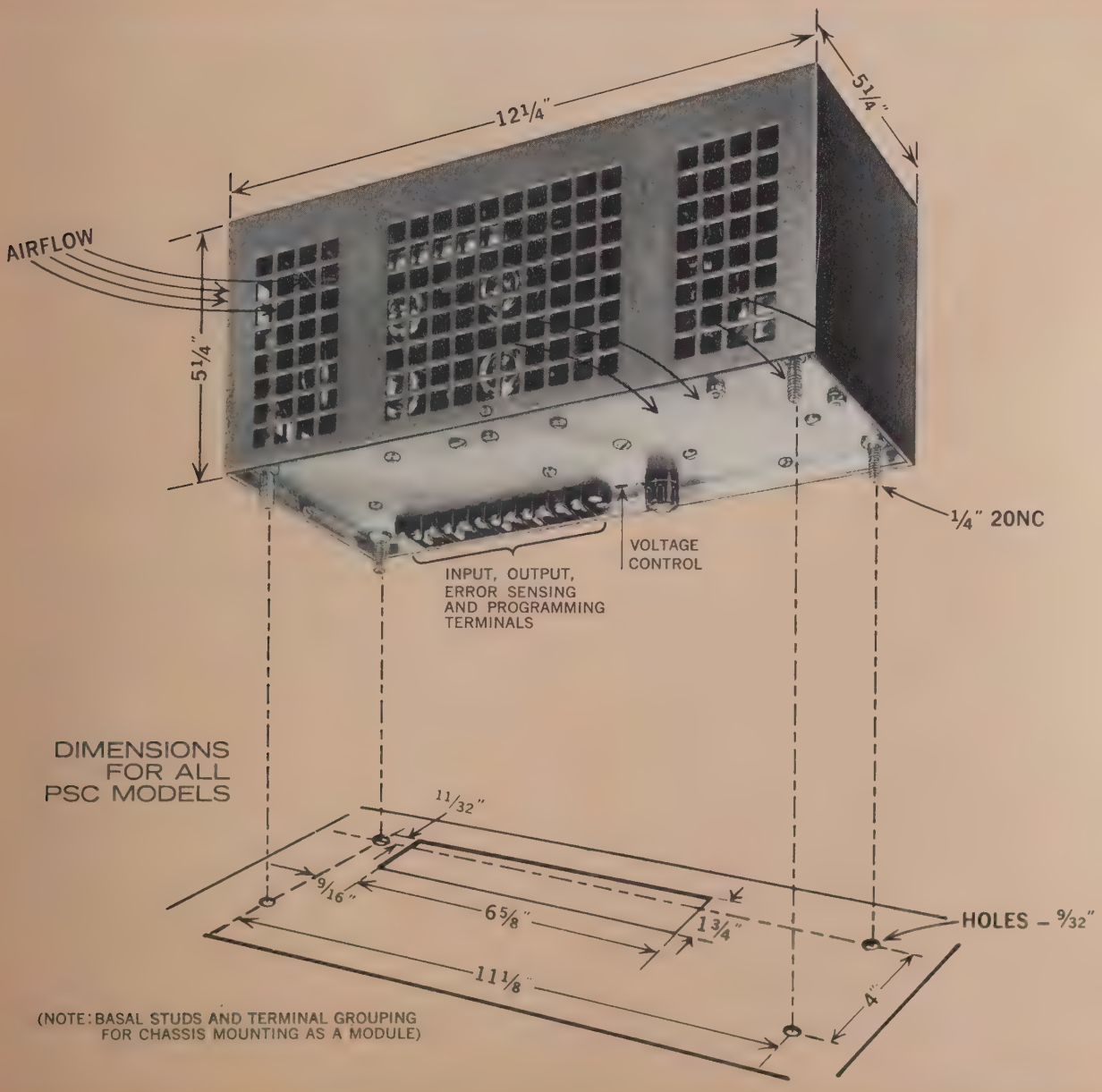


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.



DIMENSIONS FOR ALL PSC MODELS

(NOTE: BASAL STUDS AND TERMINAL GROUPING FOR CHASSIS MOUNTING AS A MODULE)

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SR

REGULATED DC SUPPLY

GROUP

TRANSISTORIZED

- *high current*
- *voltage programming*
- *high efficiency switching regulator*

0.1% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE		OUTPUT IMPEDANCE OHMS MAX.	
	VOLTS	AMPS	(DC-1 KC)	(1 KC-100 KC)
SR 12-50	5–13	0–50	0.004	0.04
SR 28-50	24–32	0–50	0.012	0.12
SR 48-30	44–52	0–30	0.02	0.2

SPECIFICATIONS:
(FOR ALL MODELS)

REGULATION:
LINE: 0.1% for ±10% v ac line change at any voltage in the specified output range.
LOAD: 1% for 0 to maximum load changes at any voltage in the specified range.

STABILITY:
Less than 0.1% for 24 hours, at constant ambient temperature.

TRANSIENT CHARACTERISTICS:
LINE: The output voltage will remain within the regulation specification for 20% step line voltage change.
LOAD: The output voltage will remain within regulation specification for 100% step load-off change and 50% step load-on change.
For 100% step load-on change, the output voltage drop is less than 1.5 volts for 30 milliseconds.

RIPPLE:
Less than 1% rms.

TEMPERATURE COEFFICIENT:
Less than 0.05% per °C.

OUTPUT IMPEDANCE:
(See table). Maximum specification given for each model over the load frequency range indicated.

AMBIENT OPERATING TEMPERATURE:
−20°C. to +50°C.
Forced-air cooling: lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

INPUT REQUIREMENTS:
208/230 v ac, 60 ± 3 cps, 3 phase, delta.

VOLTAGE CONTROL:
25-turn pot, slotted-shaft control on rear of unit, continuously adjustable.

DIMENSIONS:
H: 8¾" x W: 19" x D: 20" behind panel.

METERS:
Voltmeter and ammeter standard equipment for each model in this design group.

STANDARD FINISH:
Gray hammertone (special finishes to order).

FEATURES: (FOR ALL MODELS)

UNPRECEDENTED COMPACTNESS:
Fits standard 8¾" rack panel (⅓ to ¼ the height of equivalent range "magnetic" power supplies).

SEMICONDUCTOR DESIGN:
Advantages of zener reference and transistorized series regulator for high current requirements.

SHORT CIRCUIT PROTECTION:
Output may be shorted without damage to unit; current automatically limited to safe value; unit returns to operating voltage without overshoot when overload is removed. Ideal for lighting lamps and charging capacitive loads.

REMOTE ERROR SENSING:
Additional "sensing" terminals enable specified regulation to be maintained directly at remote load.

REMOTE OUPUT VOLTAGE CONTROL:
Additional terminals for remotely programming output at 100 ohms per volt.

OVER-TEMPERATURE PROTECTION:
Thermal relay automatically turns power "OFF" should overtemperature condition occur, reset with power ON-OFF switch.

SERIES CONNECTION:
Units can be connected in series up to 400 v between chassis and either output terminal.

NO VOLTAGE OVERSHOOT:
No output voltage overshoot from turn-on, turn-off or power failure.

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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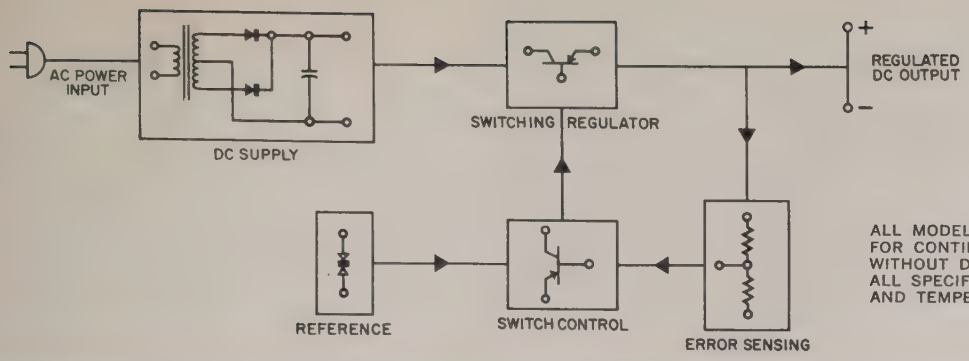
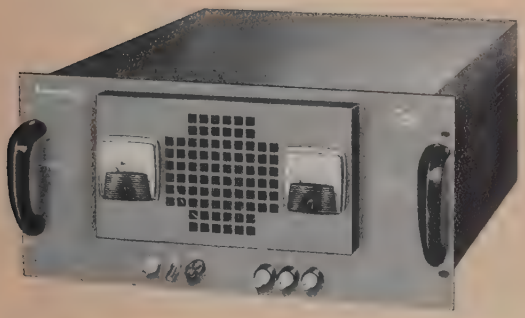
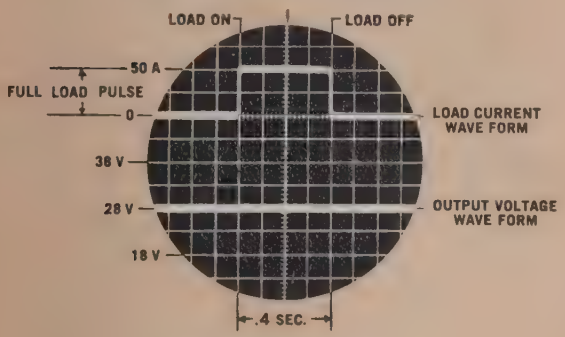


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.

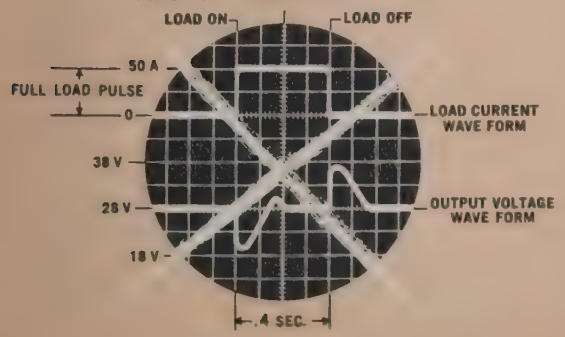


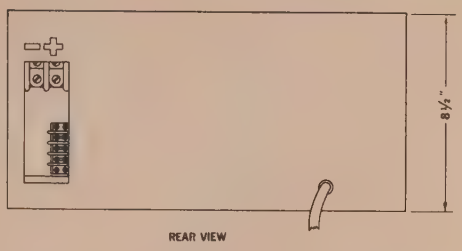
"S R" REGULATOR DESIGN ELIMINATES TRANSIENTS

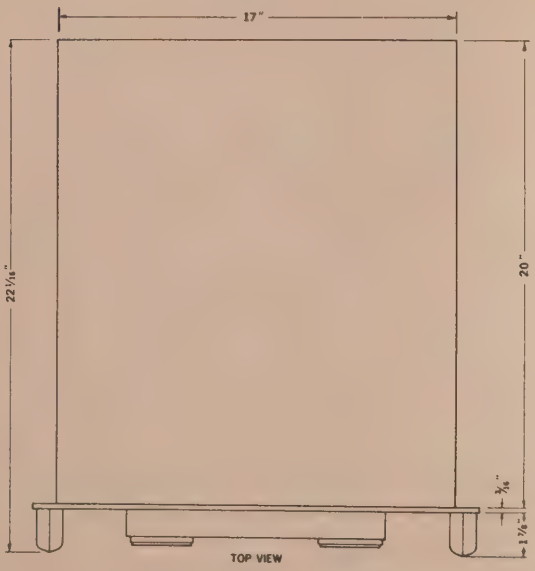
MODEL SR 28-50

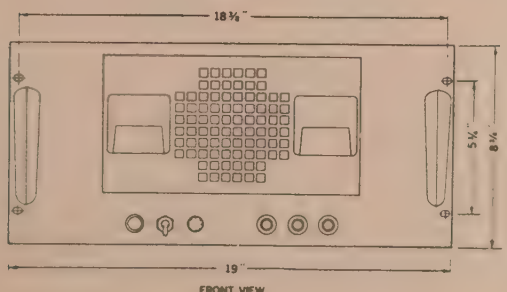


BEST "EQUIVALENT" MAGNETIC AMPLIFIER UNITS









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HB

REGULATED DC SUPPLY

GROUP

TRANSISTORIZED

- *unique hybrid regulator*
- *full range regulation:*
  0-70 — 130 — 195 — 255 — 325 V
- *full range programming: 0-325 V*
- *voltage/current regulation*

0.1% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE		REGULATION		OUTPUT IMPEDANCE
			LOAD	LINE	
	VOLTS	MA	(0-Max)	(105-125)	OHMS MAX. (DC-100KC)
HB 2M	0-325	0-200	0.1%	0.1%	1.0
HB 4M	0-325	0-400	or	0.1%	0.7
HB 6M	0-325	0-600	5mv.	0.1%	0.6
HB 8M	0-325	0-800	*	0.1%	0.5

0.01% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE		REGULATION		OUTPUT IMPEDANCE
			LOAD	LINE	
	VOLTS	MA	(0-Max)	(105-125)	OHMS MAX. (DC-100KC)
HB 20M	0-325	0-200	0.01%	0.01%	1.0
HB 40M	0-325	0-400	or	0.01%	0.7
HB 60M	0-325	0-600	1mv.	0.01%	0.6
HB 80M	0-325	0-800	*	0.01%	0.5

* (Whichever is greater)

SPECIFICATIONS: (FOR ALL MODELS)

REGULATION:

For 0.1% Models:

LINE: Less than 0.1% for 105-125 v ac line change, at any output voltage within the specified range.

LOAD: Less than 0.1% or 5 mv, whichever is greater, for NO-LOAD to FULL-LOAD change, at any output voltage within specified range.

For 0.01% Models:

LINE: Less than 0.01% for 105-125 v ac line change, at any output voltage within specified range.

LOAD: Less than 0.01% or 1 mv, whichever is greater, for NO-LOAD to FULL-LOAD change, at any output voltage within specified range.

STABILITY:

For 0.1% Models:

Less than 0.1% or 10 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

For 0.01% Models:

Less than 0.01% or 2 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

RIPPLE:

Less than 1 millivolt rms.

OUTPUT IMPEDANCE:

See Table. Maximum specification given for each model over the load frequency range indicated.

AMBIENT OPERATING TEMPERATURE:

−20°C to +55°C maximum.

TEMPERATURE COEFFICIENT:

For 0.1% Models:

Output voltage changes less than 0.05% per °C over specified ambient temperature range.

For 0.01% Models:

Output voltage change less than 0.01% per °C over specified ambient temperature range.

RECOVERY TIME:

50 microseconds.

AC OUTPUT:

Two 6.5 v ac outputs at 6 amps each: series for 13 v CT at 6 a; parallel for 12 a at 6.5 v.

INPUT REQUIREMENTS:

105-125 v ac, 50-440 cps.

PHYSICAL SPECIFICATIONS

TERMINALS and CONTROLS:

On front panel:

DC OUTPUT AND GROUND (5-way terminals). VOLTAGE RANGE SWITCH: Obtains coarse output setting in five discrete voltage bands (0-70 v, 70-130 v, 130-195 v, 195-255 v, 255-325 v). FINE CONTROL: Provides continuously variable output voltage control within each band of voltage range switch. One-turn control for 0.1% models, Ten-turn control for 0.01% models. POWER ON-OFF SWITCH, DC ON-OFF SWITCH.

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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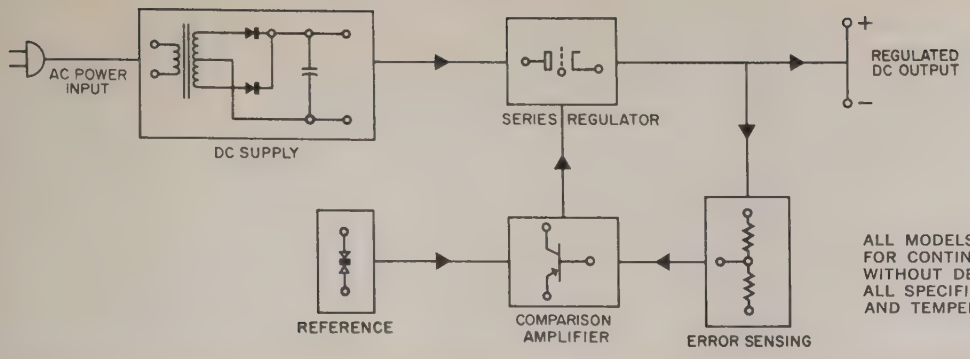


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.

On rear of chassis:
Barrier strip terminals:
DC OUTPUT AND GROUND, AC OUTPUTS (Two 6.5 v terminals at 6 amps each), REMOTE DC ON-OFF, REMOTE VOLTAGE CONTROL, PROGRAM TO ZERO.
All output terminals isolated from chassis; either positive or negative output may be grounded.

INPUT CONNECTOR:
At rear of unit: three-wire safety ground line cord.

MODULAR SUB-ASSEMBLIES:
All transistors plug in.

METERS:
Model nos. in table include voltmeter and ammeter; to specify "unmetered" unit delete suffix "M" from model no. (e.g. model HB 60 for unit without meters.)

STANDARD FINISH:
Gray hammertone (special finishes to order).

FEATURES:

CONSTANT CURRENT OPERATION:
Current regulated output may be obtained without internal modification (See pages 26 and 27).

REMOTE OUTPUT VOLTAGE CONTROL:
Additional terminals for remotely programming output at 100 ohms per volt (see pages 26 and 27).

UNIQUE DESIGN:
Achieves high efficiency by utilizing transistorized reference and amplification circuitry for optimum regulation, stability and long life; plus tube series pass elements for reliable high voltage operation.

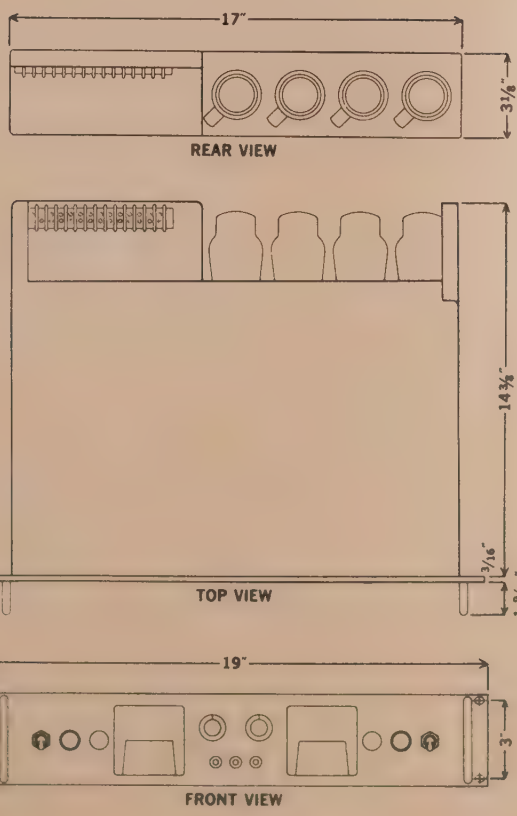
SERIES CONNECTION:
Units can be connected in series up to 400 v between chassis and either output terminal.

NO VOLTAGE OVERSHOOT:
No output voltage overshoot from turn-on, turn-off or power failure.

REMOTE DC ON-OFF:
Additional terminals permit remote on-off switching of the power supply output; heaters remain connected for "stand-by" operation.

Model HB 8M

TYPICAL DIMENSIONS

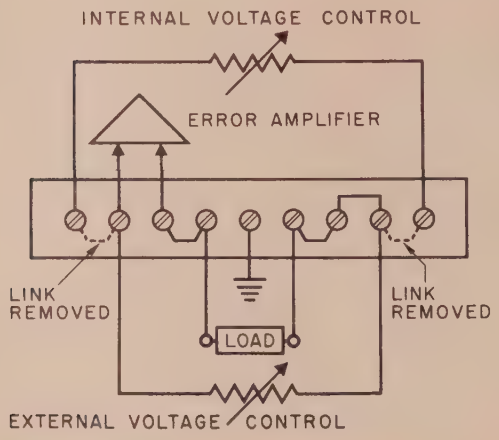


PROGRAMMABLE VOLTAGE / CURRENT

VOLTAGE CONTROL

The unique voltage comparison bridge circuit enables all KEPCO *programmable* power supplies to be externally controlled over their entire VOLTAGE and CURRENT output range.

Voltage control is achieved by means of a variable resistor through which a fixed current is made to flow (e.g. 1 ma, 3.3 ma, 10 ma, as determined by the Control Ratio). The voltage developed across this resistor determines the output voltage of the power supply.



REMOTE VOLTAGE CONTROL

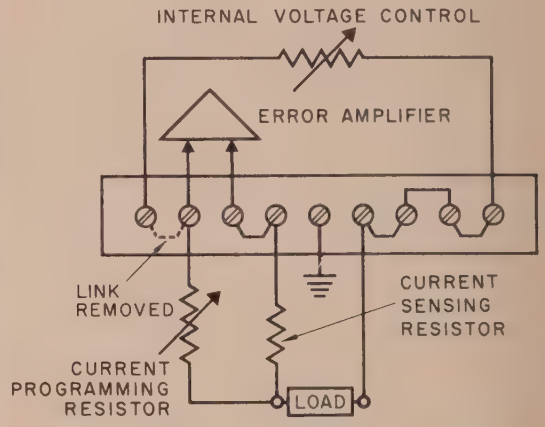
The internal voltage control is disconnected by removing the links, and the external control which may be fixed, stepped, or variable, is connected as shown.

The value of the external voltage control resistance is determined by the CONTROL RATIO (See table on opposite page). It expresses in ohms per volt the ratio between the resistance (in ohms) and the output voltage (in volts).

The current flow through the external voltage control is equal to the reciprocal of the control ratio. e.g. a 1000 ohms/volt control ratio requires 1/1000 = .001 amperes in the control element.

CURRENT CONTROL

Current control is achieved by sensing a small sample voltage developed across a resistor placed in series with the load. The power supply is controlled so as to maintain this voltage constant, thus providing current regulation. In current regulated operation, the voltage across the load changes in direct proportion to the load resistance, and is known as the *voltage compliance*. The maximum voltage compliance is equal to the output voltage range of the power supply.



CONSTANT CURRENT OPERATION

The internal voltage control is disconnected, and two external resistors are connected as shown. The current sensing resistor carries the full load current, and is selected to drop 1 volt at the operating current. This resistor should have a low temperature coefficient and should be conservatively rated for power.

The current programming resistor sets the output current of the power supply. Regulation is accomplished by correcting for voltage changes across the sensing resistor. By maintaining a constant voltage across this fixed resistor, current regulation is achieved.

The current flow through the current programming resistor is equal to the reciprocal of the control ratio.

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

PROGRAMMABLE VOLTAGE AND CURRENT REGULATED MODELS

MODEL	DC OUTPUT RANGE AMPS*	VOLTS	CURRENT REGULATION LOAD (0-max R_L)	LINE (105-125 v ac)	CURRENT RIPPLE (RMS)	CONTROL RATIO (Ohms/volt)
ABC 2-1M	0.01-1	0-2	0.2%	0.05%	0.1%	1000
ABC 7.5-2M	0.01-2.0	0-7.5	0.2%	0.05%	0.1%	1000
ABC 15-1M	0.01-1	0-15	0.2%	0.05%	0.1%	1000
ABC 30-0.3M	0.01-0.3	0-30	0.2%	0.05%	0.1%	1000
ABC 40-0.5M	0.01-0.5	0-40	0.2%	0.05%	0.1%	1000
ABC 200M	0.001-0.1	0-200	0.2%	0.05%	0.1%	1000
ABC 1500M	0.001-0.005	0-1500	0.2%	0.05%	0.1%	1000
KS 8-100M	0.01-100	0-8	0.1%	0.1%	0.05%	100
KS 18-50M	0.01-50	0-18	0.1%	0.1%	0.05%	100
KS 36-30M	0.01-30	0-36	0.1%	0.1%	0.05%	100
KS 60-20M	0.01-20	0-60	0.1%	0.1%	0.05%	100
SC 18-0.5M	0.01-0.5	0-18	0.2%	0.1%	0.1%	1000
SC 18-1M	0.01-1.0	0-18	0.2%	0.1%	0.1%	1000
SC 18-2M	0.01-2.0	0-18	0.2%	0.1%	0.1%	1000
SC 18-4M	0.01-4.0	0-18	0.2%	0.1%	0.1%	1000
SC 33-5M	0.01-5.0	0-33	0.2%	0.1%	0.1%	1000
SC 36-0.5M	0.01-0.5	0-36	0.2%	0.1%	0.1%	1000
SC 36-1M	0.01-1.0	0-36	0.2%	0.1%	0.1%	1000
SC 36-2M	0.01-2.0	0-36	0.2%	0.1%	0.1%	1000
SC 3672-0.5M	0.01-0.5	36-72	0.2%	0.1%	0.1%	1000
SC 3672-1M	0.01-1.0	0-36-72	0.2%	0.1%	0.1%	1000
SC 32-0.5	0.01-0.5	0-32	0.02%	0.01%	0.1%	300
SC 32-1	0.01-1.0	0-32	0.02%	0.01%	0.1%	300
SC 32-1.5	0.01-1.5	0-32	0.02%	0.01%	0.1%	300
2SC 32-1.5 Dual Output	0.01-1.5	0-32	0.02%	0.01%	0.1%	300
SC 32-2.5	0.01-2.5	0-32	0.02%	0.01%	0.1%	300
SC 32-5	0.01-5.0	0-32	0.02%	0.01%	0.1%	300
2SC 100-0.2 Dual Output	0.03-0.2	0-100	0.02%	0.01%	0.1%	300
	0.03-0.2	0-100	0.02%	0.01%	0.1%	300
PSC 5-2	0.01-2.0	0-7.5	0.04%	0.02%	0.1%	1000
PSC 10-2	0.01-2.0	7.5-12.5	0.04%	0.02%	0.1%	1000
PSC 15-2	0.01-2.0	12.5-17.5	0.04%	0.02%	0.1%	1000
PSC 20-2	0.01-2.0	17.5-22.5	0.04%	0.02%	0.1%	1000
PSC 28-1	0.01-1.0	22.5-32.5	0.04%	0.02%	0.1%	1000
PSC 38-1	0.01-1.0	32.5-42.5	0.04%	0.02%	0.1%	1000
HB 2M	0.01-0.2	0-325	0.2%	0.1%	0.1%	100
HB 4M	0.01-0.4	0-325	0.2%	0.1%	0.1%	100
HB 6M	0.01-0.6	0-325	0.2%	0.1%	0.1%	100
HB 8M	0.01-0.8	0-325	0.2%	0.1%	0.1%	100
HB 20M	0.01-0.2	0-325	0.02%	0.01%	0.1%	100
HB 40M	0.01-0.4	0-325	0.02%	0.01%	0.1%	100
HB 60M	0.01-0.6	0-325	0.02%	0.01%	0.1%	100
HB 80M	0.01-0.8	0-325	0.02%	0.01%	0.1%	100
DR 11	0.01-1.0	0-11	0.02%	0.01%	0.1%	1000
DR 400	0.01-0.5	0-400	0.02%	0.01%	0.1%	1000

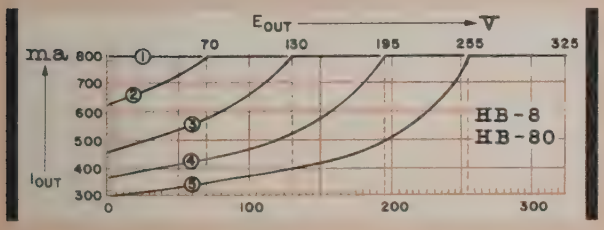
Complete specifications on voltage regulated mode given separately for all models in table. (see index pages 2 & 3)

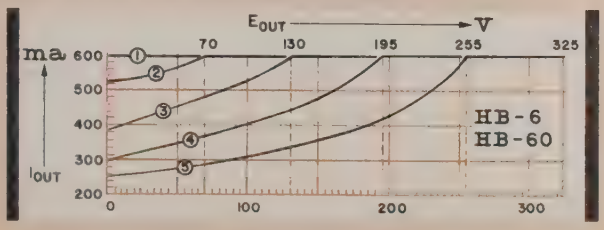
*

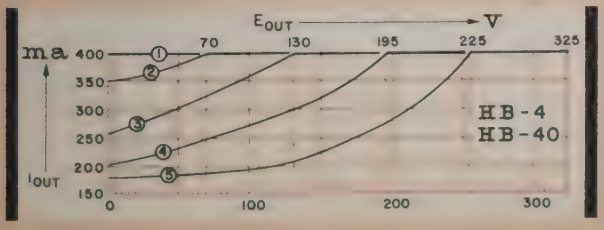
NOTE:
(For current regulated operation only):
Higher output currents may be obtained by connecting two or more units in parallel.

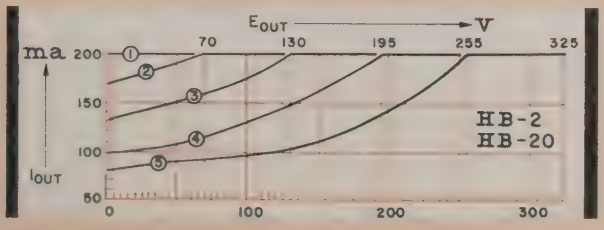
Current derating required only for high voltage HB units and DR 400.

LOAD CURRENT DERATING GRAPHS FOR HB DESIGN GROUP









① IS 0-70V RANGE ② IS 70-130 V RANGE ③ IS 130-195 V RANGE ④ IS 195-255 V RANGE ⑤ IS 255-325 V RANGE

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KR REGULATED DC SUPPLY GROUP

VACUUM TUBE

- *narrow voltage range*
- *systems or laboratory use*
- *low cost*

0.1% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE VOLTS	AMPS	REGULATION LOAD (O-MAX) % or ΔV		LINE (115±10) % or ΔV		OUTPUT Z OHMS (DC-100KC)	6.3V AC Unregulated	DIMENSIONS H	W	D*
125 Ma. KR SERIES											
KR 11M	0–150	125 Ma	0.1	0.2V	0.1	0.2V	0.9	Each Supply	7″	19″	11″
KR 1M	100–200	125 Ma	0.1	0.2V	0.1	0.2V	0.9	has one	7″	19″	7½″
KR 2M	195–325	125 Ma	0.06	0.2V	0.06	0.2V	0.9	3 Amp	7″	19″	7½″
KR 9M	295–450	125 Ma	0.04	0.2V	0.04	0.2V	0.9	Output	7″	19″	7½″
300 Ma. KR SERIES											
KR 12M	0–150	300 Ma	0.1	0.2V	0.1	0.2V	0.5	Each Supply	7″	19″	11″
KR 3M	100–200	300 Ma	0.1	0.2V	0.1	0.2V	0.5	has two	7″	19″	11″
KR 4M	195–325	300 Ma	0.06	0.2V	0.06	0.2V	0.5	5 Amp	7″	19″	11″
KR 10M	295–450	300 Ma	0.04	0.2V	0.04	0.2V	0.5	Outputs	7″	19″	11″
600 Ma. KR SERIES											
KR 8M	0–150	600 Ma	0.1	0.2V	0.1	0.2V	0.3	Each Supply	10½″	19″	13″
KR 5M	100–200	600 Ma	0.1	0.2V	0.1	0.2V	0.3	has two	10½″	19″	13″
KR 6M	195–325	600 Ma	0.06	0.2V	0.06	0.2V	0.3	10 Amp	10½″	19″	13″
KR 7M	295–450	600 Ma	0.04	0.2V	0.04	0.2V	0.3	Outputs	10½″	19″	13″
1.5 AMP. KR SERIES											
KR 16M	0–150	1.5 Amp	0.1	0.2V	0.1	0.2V	0.1	Each Supply	12¼″	19″	17″
KR 17M	100–200	1.5 Amp	0.1	0.2V	0.1	0.2V	0.1	has two	12¼″	19″	17″
KR 18M	195–325	1.5 Amp	0.06	0.2V	0.06	0.2V	0.1	15 Amp	12¼″	19″	17″
KR 19M	295–450	1.5 Amp	0.04	0.2V	0.04	0.2V	0.1	Outputs	12¼″	19″	17″

*Depth behind panel

SPECIFICATIONS: (FOR ALL MODELS)

REGULATION:

(See table) The regulation of each model is specified as a % or ΔV for 115 ± 10 v ac line change or 0-maximum load change.

% values represent regulation obtained at maximum rated output voltage.

ΔV values represent maximum absolute change in output voltage at any output setting in specified range.

STABILITY:

Less than regulation specification over a period of 8 hours, at constant ambient temp.

RIPPLE:

Less than 3 millivolts rms.

OUTPUT IMPEDANCE:

Specified separately for each model within the load frequency range indicated in table.

AMBIENT OPERATING TEMPERATURE:

−20°C to +55°C maximum.

TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.01% per °C.

TERMINALS AND CONTROLS:

On front panel: AC INPUT ON-OFF SWITCH, PILOT LIGHT, DC OUTPUT ON-OFF SWITCH, PILOT LIGHT. VOLTAGE CONTROL (only on Models KR 16M, 17M, 18M, 19M).

On rear of unit: DC OUTPUT TERMINATIONS and GROUND, AC OUTPUT TERMINATIONS. VOLTAGE CONTROL (except Models KR 16M, 17M, 18M and 19M).

Output terminals are isolated from chassis.

INPUT REQUIREMENTS:

105-125 v ac, 50-65 cps. (Models KR 1M and KR 2M operate 50-440 cps).

METERS:

Model nos. in table include voltmeter and ammeter; to specify "unmetered" units, delete suffix "M" from model no. (e.g. Model KR 2 for unit without meters).

DIMENSIONS:

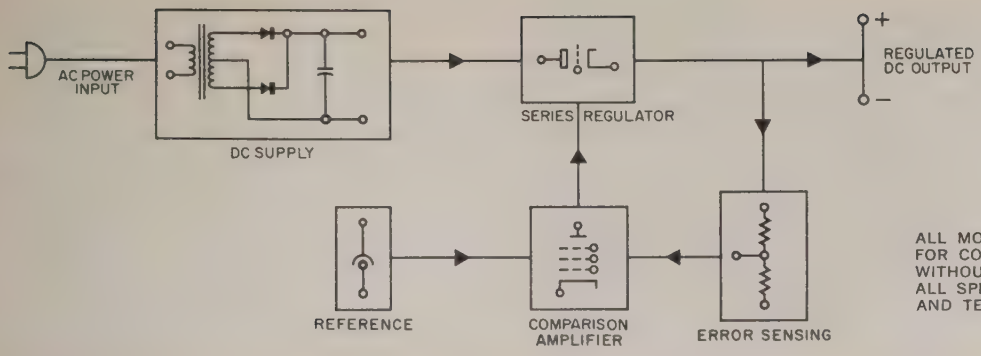
See table for rack mounting dimensions.

STANDARD FINISH:

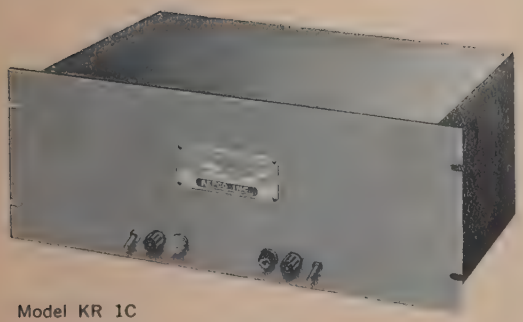
Gray hammertone (special finishes to order).

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

kepco inc.



ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.



Model KR 1C

FEATURES:

(FOR ALL MODELS)

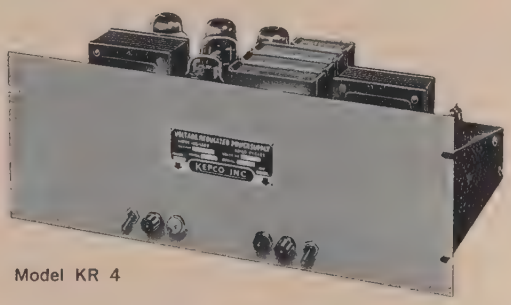
- Continuously variable output voltage control. No switching.
- Either positive or negative output terminals may be grounded.
- Recovery time: 50 microseconds. Suitable for square wave pulsed loading.
- Wire harness and resistor board construction.
- Oil filled capacitors.
- Designed for rack mounting.
- Provision for remote output voltage control, on special order, for all models.
- Modification for operation with 400 cps input, on special order.

OPTIONAL FEATURES:

(FOR ALL MODELS)

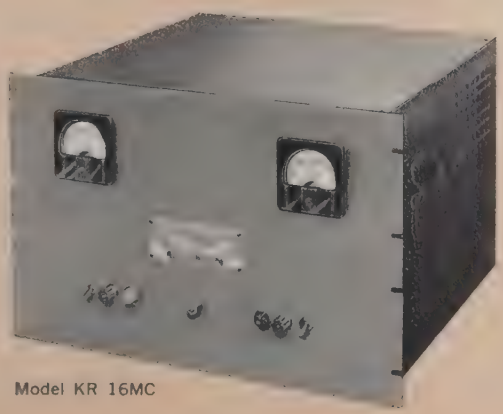
Meters optional; for unmetered units delete suffix "M" from model no. in table.

Cover and Handles optional; to include cover and handles add suffix "C" to model no. (e.g. KR 1MC for meters, cover and handles).



Model KR 4

Model KR 8M



Model KR 16MC

kepco

WideRange REGULATED DC SUPPLY GROUP

VACUUM TUBE

- *wide voltage range*
- *general purpose*
- *systems or laboratory use*

<0.1% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE VOLTS	CURRENT	REGULATION LOAD (0-MAX.) % or △V		LINE (115±10) % or △V		RIPPLE (RMS)	OUTPUT Z OHMS MAX. (DC-100KC)	6.3V AC CT Unreg.	DIMENSIONS H	W	D*
2400B	#1 0-150 Bias	0-5 ma	*	*	0.007	*	1 mv	*		10½"	19"	17"
	#2 0-400	0-150 ma	0.02	0.1V	0.04	0.2V	3 mv	0.5	10 Amp.			
	#3 0-400	0-150 ma	0.02	0.1V	0.04	0.2V	3 mv	0.5	10 Amp.			
	Parallel 2 & 3 0-400	0-300 ma	0.02	0.1V	0.04	0.2V	3 mv	0.3				
	Series 2 & 3 0-800	0-150 ma	0.01	0.1V	0.03	0.3V	5 mv	0.5				
400B	0-400	0-150 ma	0.02	0.1V	0.04	0.2V	3 mv	0.5	10 Amp.	7"	19"	11"
	0-150 Bias	0-5 ma	*	*	0.007	*	1 mv	*				
430D	#1 0-450	0-300 ma	0.02	0.1V	0.04	0.2V	3 mv	0.3	10 Amp.	12¼"	19"	17"
	#2 0-450	0-300 ma	0.02	0.1V	0.04	0.2V	3 mv	0.3	10 Amp.			
	Parallel 1 & 2 0-450	0-600 ma	0.02	0.1V	0.04	0.2V	3 mv	0.2				
	Series 1 & 2 0-900	0-300 ma	0.01	0.1V	0.03	0.3V	5 mv	0.3				
800B	#1 0-600	0-200 ma	0.01	0.1V	0.03	0.2V	3 mv	0.5	10 Amp.	12¼"	19"	17"
	#2 0-600	0-200 ma	0.01	0.1V	0.03	0.2V	3 mv	0.5	10 Amp.			
	Parallel 1 & 2 0-600	0-400 ma	0.01	0.1V	0.03	0.2V	3 mv	0.2				
	Series 1 & 2 0-1200	0-200 ma	0.01	0.1V	0.03	0.3V	5 mv	0.5				
605	0-600	0-500 ma	0.01	0.1V	0.02	0.2V	3 mv	0.2	20 Amp.	10½"	19"	17"
	0-150 Bias	0-5 ma	*	*	0.007	*	1 mv	*				
615B	0-600	0-300 ma	0.01	0.1V	0.02	0.2V	3 mv	0.3	10 Amp.	10½"	19"	13"
	0-150 Bias	0-5 ma	*	*	0.007	*	1 mv	*				
103✧	#1 0-300	0-75 ma	Common B-				30 mv		5 Amp.	8"	16"	8"
	#2 0-300	0-75 ma					30 mv			(Available with Rack Adaptor RA-1 8¾" H x 19" W)		
	#3 -50 to +50	0-5 ma	Isolated from #1 & #2			Unregulated	10 mv					
	Parallel 1 & 2 0-300	0-150 ma					30 mv					
1250B✧	0-1000	0-500 ma	0.01	0.1V	0.02	0.2V	3 mv	0.2		26¼"	19"	13"
1220C	0-1200	0-50 ma	0.01	0.1V	0.02	0.2V	3 mv	0.5	10 Amp.	10½"	19"	13"
1520B✧	0-1500	0-200 ma	0.006	0.1V	0.01	0.2V	3 mv	0.5		21"	19"	13"
2500	0-2500	0-50 ma	0.004	0.1V	0.008	0.2V	5 mv	0.5		12¼"	19"	17"

*Depth behind panel

FEATURES:

- Continuously variable output voltage control. No switching.
- Fast recovery time; suitable for square wave pulsed loading.
- Either positive or negative DC output terminal may be grounded.
- Wire harness and resistor board construction.
- Voltmeter and ammeter standard equipment except for models 103, and 2500.
- Provision for remote output voltage control, on special order, for all models.
- Modification for 400 cps input, on special order for all models except model 2500.
- All chassis are designed to mount directly into a standard 19" width relay rack. Also suitable for bench use.

*REGULATION FOR BIAS VOLTAGE:

In the range of 0 to 150 volts the output voltage variation is less than 0.007% for line fluctuation from 105 to 125 volts. At 150 volts the output voltage variation is less than ½% for load variation from 0 to 5 ma. At settings below 150 volts the internal resistance of the supply will increase to a maximum of 25,000 ohms.

✧ These units are supplied in cabinets. The chassis, when removed from their cabinets, will mount directly into a standard 19" width relay rack. All units are designed for relay rack mounting or bench use.

DATA SUBJECT TO CHANGE WITHOUT NOTICE
PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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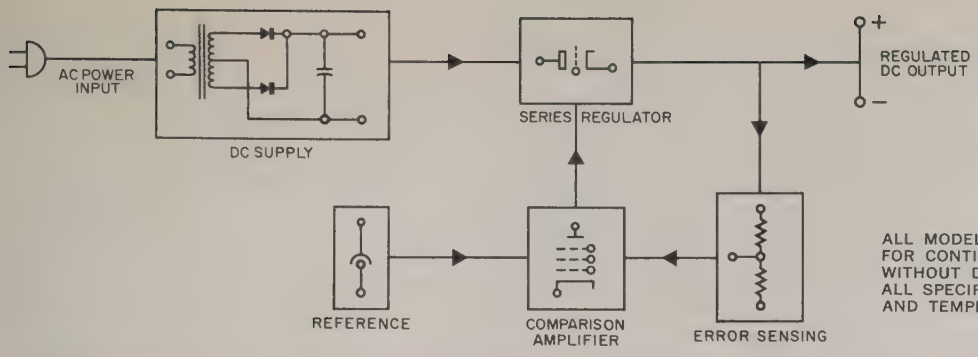


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.

SPECIFICATIONS:
(FOR ALL MODELS)

REGULATION:

(See table) The regulation of each model is specified as a % or ΔV for 115 ± 10 v ac line change or 0-maximum load change.

% values represent regulation obtained at maximum rated output voltage.

ΔV values represent maximum absolute change in output voltage at any output setting in specified range.

STABILITY:

Less than regulation specification over a period of 8 hours, at constant ambient temperature.

OUTPUT IMPEDANCE:

See table. Maximum specification given for each model over the load frequency range indicated.

RIPPLE:

See table for maximum specification applicable to each model.

RECOVERY TIME:

50 microseconds.

AMBIENT OPERATING TEMPERATURE:

−20°C to +55°C maximum.

TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.01% per °C.

TERMINALS and CONTROLS:

On front panel:—AC and DC output terminations, AC input on-off switch, pilot light, DC output on-off switch, pilot light, Voltage controls.
For model 2400B, terminations on rear only.

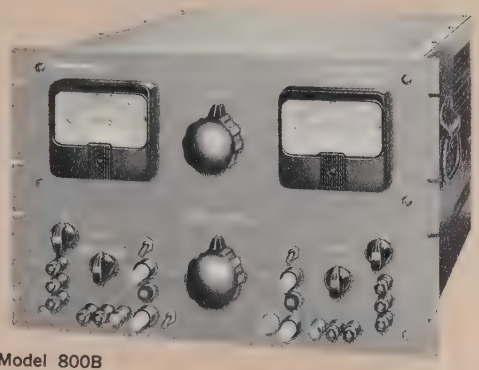
On rear of unit:—AC and DC output terminations. Output terminals are clearly marked and isolated from the chassis.
Model 103 terminations on front only.

INPUT REQUIREMENTS:

105-125 v ac, 50-65 cps. (Model 2500; 57-63 cps.)

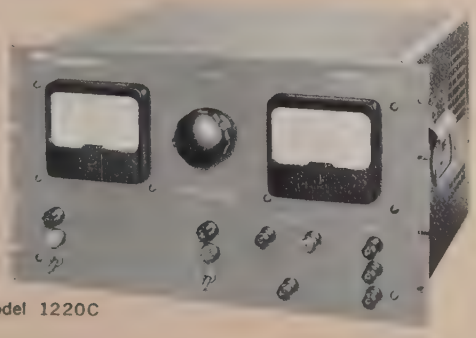
STANDARD FINISH:

Gray hammertone (special finishes to order).



Model 800B

Model 605



Model 1220C

kepco

KM REGULATED DC SUPPLY GROUP

MAGNETIC

- *rugged magnetic amplifier design*
- *dual regulation*
- *high current*

0.5% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE		REGULATION LOAD (0-MAX)		REGULATION LINE (105-125)		DIMENSIONS		
	VOLTS	AMPS	% or △V		% or △V		H	W	D*
KM 236-15A	0.1–36	0–15 Amp	0.5	0.025	0.5	0.025	12¼″	19″	17″
KM 236-30◆	0.1–36	0–30 Amp	0.5	0.025	0.5	0.025	26¼″	19″	17″
KM 236-50◆	0.1–36	0–50 Amp	0.5	0.025	0.5	0.025	36¾″	19″	17″

◆ These units are supplied in cabinets. *Depth behind panel

SPECIFICATIONS:
(FOR ALL MODELS)

REGULATION:

LINE: Less than 0.5% or 0.025 volt, whichever is greater, for line changes 105-125 volts at any voltage in the specified output range.

LOAD: Less than 0.5% or 0.025 volt, whichever is greater, for load changes from 0 to maximum, at any voltage in the specified output range.

STABILITY:

Less than 0.5% or 25 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

RIPPLE:

Less than 0.5% or 40 millivolts rms, whichever is greater.

AMBIENT OPERATING TEMPERATURE:

−20°C to +55°C maximum.

TEMPERATURE COEFFICIENT:

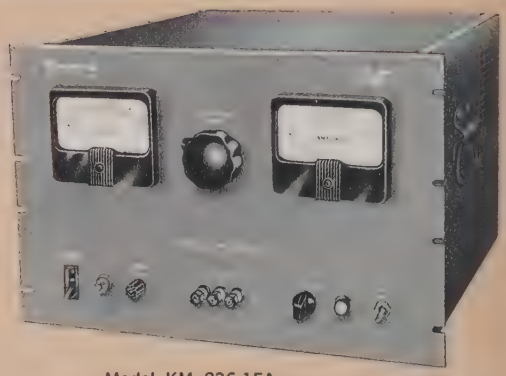
Output voltage changes less than 0.05% per °C.

INPUT REQUIREMENTS:

KM236-15A, KM236-30: 105-125 volts, 57-63 cycles. KM236-50: 208 volts ±10%, or 230 volts ±10%, 57-63 cycles, single phase.

RECOVERY TIME:

0.2 second. Output voltage within 0.5% during recovery time for line transients 105-125 volts.



Model KM 236-15A

TERMINALS and CONTROLS:

On front panel:—DC output terminations and ground (except on KM 236-50), DC output on-off switch, pilot light, AC input on-off switch, pilot light, Coarse and fine voltage controls.

On rear of unit:—DC output terminations and ground. Remote error signal terminations.

Output terminals are clearly marked and isolated from chassis. Either positive or negative terminal may be grounded.

METERS:

Voltmeter and Ammeter standard for all models in this design group.

STANDARD FINISH:

Gray hammertone (special finishes to order).

FEATURES: (FOR ALL MODELS)

REMOTE ERROR SIGNAL SENSING:

Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads.

SHORT CIRCUIT PROTECTION:

An automatic current limiting device allows direct shorting of the output terminals without damage to the supply.

SERIES CONNECTION:

Units can be connected in series up to 400 v between chassis and either output terminal.

NO VOLTAGE OVERSHOOT:

No output voltage overshoot from turn-on, turn-off or power failure.

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PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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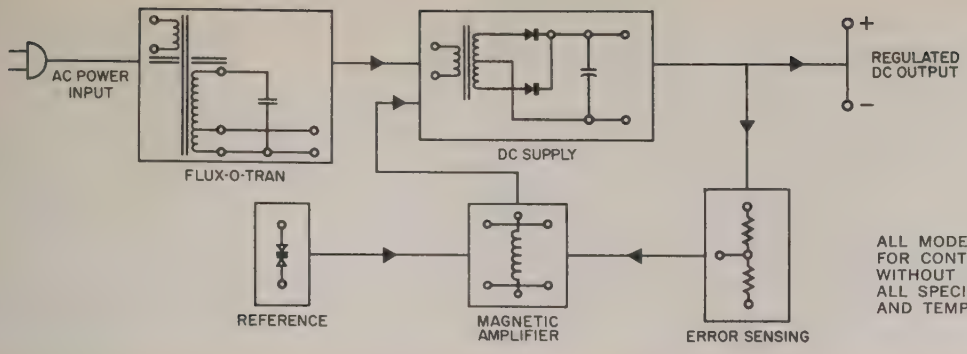
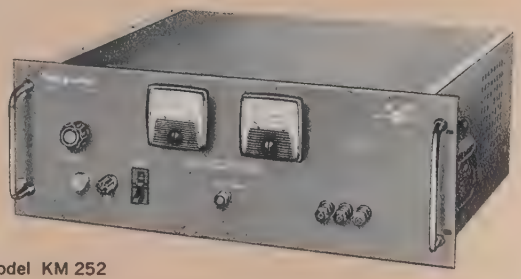


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.

±1% REGULATION and STABILITY

MODEL	DC OUTPUT VOLTS (Continuously Variable)	MAXIMUM DC OUTPUT				RIPPLE RMS %
		IN RANGE	MAX. AMPS	IN RANGE	MAX. WATTS	
KM 251	2–14	2–8 VDC	30	8–14 VDC	240	0.5
KM 252	5–35	5–20 VDC	12	20–35 VDC	240	0.2
KM 253	20–60	20–40 VDC	6	40–60 VDC	240	0.05
KM 254	30–90	30–60 VDC	4	60–90 VDC	240	0.04
KM 255	60–180	60–120 VDC	2	120–180 VDC	240	0.03



Model KM 252

SPECIFICATIONS:

(FOR ALL MODELS)

REGULATION:

LINE: Less than ±1% for 100-130 v ac line change at any voltage in the specified output range.
LOAD: At any voltage in the specified output range the load regulation can be optimized to within ±1% by means of a control adjustment on the front panel.

STABILITY:

Less than ± 1%, over a period of 8 hours, at constant ambient temperature.

RIPPLE:

Specification given separately for each model at maximum rated output voltage. (See table)

AMBIENT OPERATING TEMPERATURE:

−20 C to +55°C maximum.

TEMPERATURE COEFFICIENT:

Output voltage changes less than ±0.1% per °C.

INPUT REQUIREMENTS:

100-130 v ac, 60 cycles.

TERMINALS and CONTROLS:

On front panel: DC output terminations and ground, AC input on-off switch, pilot light, output voltage control (continuously variable). Load regulation control.

On rear of unit: DC output terminations and ground, remote error signal terminations.
Output terminals are clearly marked and isolated from chassis. Either positive or negative terminal may be grounded.

RECOVERY TIME:

0.3 second recovery from full load transients; output voltage remains within ±1% of setting for 105-125 v ac line transient.

METERS:

Voltmeter and Ammeter standard for all models in this design group.

DIMENSIONS:

H: 7″ x W: 19″ x D: 13″ behind panel.

STANDARD FINISH:

Gray Hammertone (special finishes to order).

FEATURES: (FOR ALL MODELS)

REMOTE ERROR SIGNAL SENSING:

Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads.

OVERLOAD PROTECTION:

An automatic current limiting device allows direct shorting of the output terminals without damage to the supply. Ideal for lighting lamps and charging capacitive loads.

SERIES CONNECTION:

Units can be connected in series up to 400 v between chassis and either output terminal.

kepco

PR

REGULATED DC SUPPLY

GROUP

SOLID STATE

- *constant voltage regulator transformer*
- *wide voltage range*
- *high current*

± 1% LINE REGULATION

FIGURE 1

MODEL	DC OUTPUT RANGE VOLTS	AMPS	MAXIMUM % RIPPLE rms. at max. v (see Figure 3)	DIMENSIONS H"	W"	D"
PR 15-10M	0–7.5–15	0–10	4	3½	19	13⅞
PR 15-30M	0–15	0–30	4	7	19	13⅞
PR 38-5M	0–19–38	0–5	2	3½	19	13⅞
PR 38-15M	0–38	0–15	2	7	19	13⅞
PR 80-2.5M	0–40–80	0–2.5	1.5	3½	19	13⅞
PR 80-8M	0–80	0–8	1.5	7	19	13⅞
PR 155-1M	0–78–155	0–1	1	3½	19	13⅞
PR 155-4M	0–155	0–4	1	7	19	13⅞
PR 310-0.6M	0–165–310	0–0.6	0.5	3½	19	13⅞
PR 310-2M	0–310	0–2	0.5	7	19	13⅞

SPECIFICATIONS: (FOR ALL MODELS)

REGULATION:

LINE

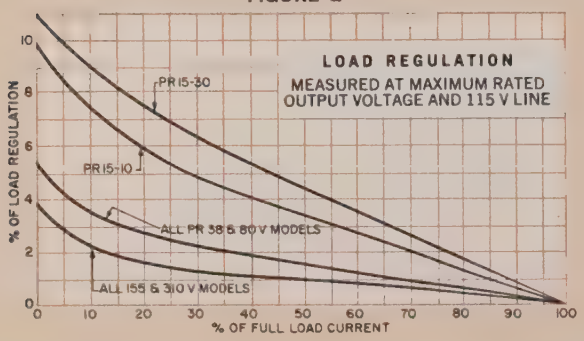
±1% output voltage change for 115 v ±10 v ac line change at any output voltage within load range specified in *Figure 4.*

LOAD — *at maximum output voltage:*

Less than 2% output voltage change for a load current change from 100% to 50% or 50% to 100% for all except 15 v models (5% regulation for PR-15-10M and PR-15-30M). *See Figure 2 below.*

Less than 4% output voltage change for a load current change from 100% to 25% or 25% to 100% for all except 15 v models (8% regulation for PR 15-10M and PR 15-30M). *See Figure 2 below.*

FIGURE 2



RIPPLE:

For maximum % ripple at maximum rated output voltage and current, *see Figure 1.* For typical ripple values at reduced output currents, *see Figure 3.* At lower output voltages the absolute value of the ripple is less than at maximum output voltage.

AMBIENT OPERATING TEMPERATURE:

—20°C to +55°C.

Forced-air cooling: lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

INPUT REQUIREMENTS:

105-125 v ac, 60 cps ±5%.

Note: % changes in line frequency produce approximately equal % changes in output voltage linearly within stated input frequency tolerances.

TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.05% per °C.

OPERATING FEATURES:

"FLUX-O-TRAN"

CONSTANT VOLTAGE TRANSFORMER:

Delivers regulated square-wave voltage to rectifier, improving rectifier utilization, and reducing output ripple.

ADJUSTABLE WIDE-RANGE OUTPUT:

Continuously variable voltage control permits output settings from 0 (0.1% of maximum voltage) to maximum voltage. (On 3½"-high models output voltage is variable in two continuous ranges).

OVERLOAD PROTECTION:

Special "Flux-O-Tran" transformer and DC overload circuit breaker allow output to be shorted without damage to unit. Ideal for lighting lamps and charging capacitive loads.

EFFICIENT OPERATION:

Power efficiency typically 70-80%.

SILICON RECTIFIERS:

Reliable, efficient, full-wave rectification.

CAPACITIVE FILTERING:

Provides excellent ripple reduction and minimizes transient response characteristics. No voltage overshoot.

NO VOLTAGE OVERSHOOT:

No output voltage overshoot from removal or application of load, turn-on, turn-off or power failure.

SERIES CONNECTION:

Units can be connected in series up to 400 v between chassis and either output terminal.

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PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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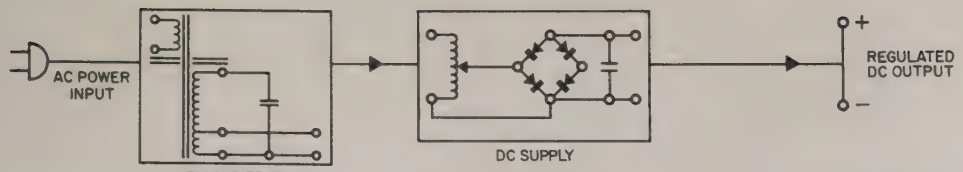


ALL MODELS ARE DESIGNED FOR CONTINUOUS OPERATION WITHOUT DERATING UNDER ALL SPECIFIED LINE, LOAD AND TEMPERATURE CONDITIONS.

Model PR 310-0.6M

PHYSICAL SPECIFICATIONS:
(FOR ALL MODELS)

TERMINALS AND CONTROLS:

On front panel: DC OUTPUT and GROUND (5-way terminals), VOLTAGE CONTROL, OVERLOAD CIRCUIT BREAKER, POWER ON-OFF SWITCH (2-position range switch on 3½"-high models only).

On rear of Chassis: DC OUTPUT and GROUND (5-way terminals).

All output terminals isolated from chassis; either positive or negative output may be grounded.

INPUT CONNECTOR:

Three-wire safety ground line cord provided at rear of unit.

COMPACT DESIGN:

Suitable for rack mounting or bench use.

STANDARD FINISH:

Gray hammertone (special finishes to order).

METERS:

(See optional features)

DIMENSIONS:

See *Figure 1* for specifications of each model.

OPTIONAL FEATURES:

METERS:

Model numbers in *Figure 1* include voltmeter and ammeter; to specify unmetered unit, delete suffix "M" from model no. (e.g. PR 155-4 for unit without meters)

STANDARD MODIFICATIONS (TO ORDER):

- For operation from 50 cycle input.
- For fixed output voltage applications.
- For convection-cooled operation (ie. no blowers), at somewhat reduced output ratings.
- Special packaging to accommodate space requirements.

FIGURE 3
TYPICAL RIPPLE CHARACTERISTICS
AS A FUNCTION OF LOAD CURRENT

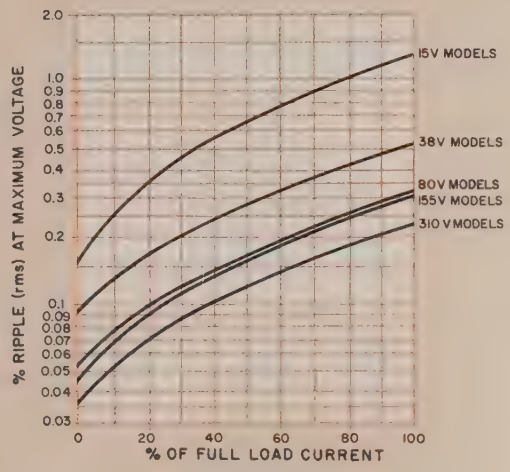
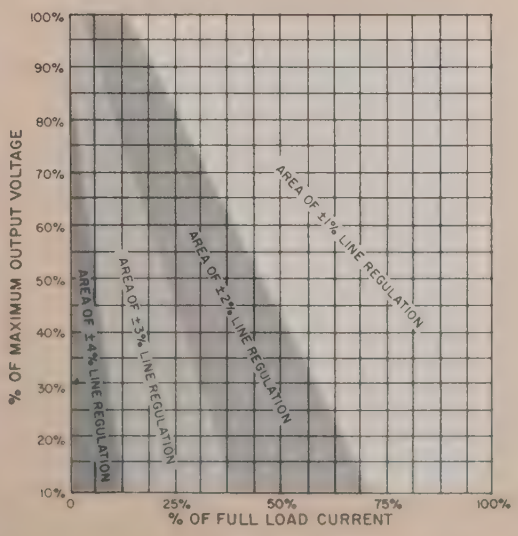


FIGURE 4
LINE REGULATION
(FOR ALL MODELS)
AS A FUNCTION OF OUTPUT VOLTAGE AND LOAD CURRENT



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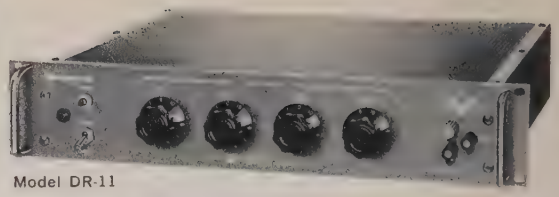
DR

REGULATED DC SUPPLY

GROUP

TRANSISTORIZED



Model DR-11

Model DR-400

0.01% REGULATION and STABILITY

MODEL	DC OUTPUT RANGE		OUTPUT IMPEDANCE OHMS MAX.	
	VOLTS	AMPS	DC-1KC	(1KC-100KC)
DR 11	0– 11.110	0–1.0	0.001	0.05
DR 400	0–411.110	0–0.5	0.08	0.8

SPECIFICATIONS:

REGULATION:

LINE: Less than 0.01% or 0.04 millivolts, whichever is greater, for 105-125 v ac line change.

LOAD - DR 11 : Less than 0.01% or 0.1 millivolts, whichever is greater, for 0 to maximum load change.

LOAD - DR 400: Less than 0.01% or 0.5 millivolts, whichever is greater, for 0 to maximum load change.

STABILITY:

Less than 0.01% or 1 millivolt, whichever is greater, over a period of 8 hours at constant ambient temperature.

RIPPLE:

Less than 0.5 millivolts rms.

RECOVERY TIME:

50 microseconds.

AMBIENT OPERATING TEMPERATURE:

– 20° C to +50° C maximum.

TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.01% per ° C.

OUTPUT IMPEDANCE:

Specified separately for each model within the load frequency range indicated in table.

TERMINALS and CONTROLS:

On front panel: DC output and ground terminations, voltage controls, AC input power switch and circuit breaker.

DR 11: Four decades providing control in 1 millivolt steps in the range of 0-11.110 volts.

DR 400: Six decades providing control in 1 millivolt steps in the range of 0-411.110 volts.

On rear of unit: Barrier strip terminations for DC output and ground, remote output voltage control and remote error signal sensing. Output terminals are isolated from the chassis, either positive or negative terminals may be grounded. Voltage calibration controls and current limit control.

INPUT REQUIREMENTS:

DR 11: 105-125 v ac, 50-65 cps (400 cps units available).
DR 400: 105-125 v ac, 50-440 cps.

MECHANICAL SPECIFICATIONS:

METERS: None..
DIMENSIONS: 3½" H x 19" W x 18½" D.
FINISH: Gray hammertone (special finishes to order).

PERFORMANCE FEATURES:

CURRENT LIMIT CONTROL:

A one-turn control provides adjustable current limiting from 10 to 135% of rated full-load current as a standard feature for all models.

SHORT CIRCUIT PROTECTION:

Unique circuitry enables continuous operation into a short circuit without the aid of fuses, circuit breakers, or relays. Unit returns instantly to operating voltage when overload is removed.

REMOTE PROGRAMMING:

Special terminations enable voltage control from remote location at 1000 ohms per volt, without internal modification. (See pages 26 and 27).

REMOTE ERROR SENSING:

Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads.

CONSTANT CURRENT OPERATION:

Special terminal board connections enable constant current mode of operation without internal modification (See pages 26 and 27).

NO VOLTAGE OVERSHOOT:

No output voltage overshoot from turn-on, turn-off or power failure.

SERIES CONNECTION:

Units can be connected in series up to 600 v between chassis and either output terminal.

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PATENT NOTICE: Applicable Patent Nos. will be supplied on request

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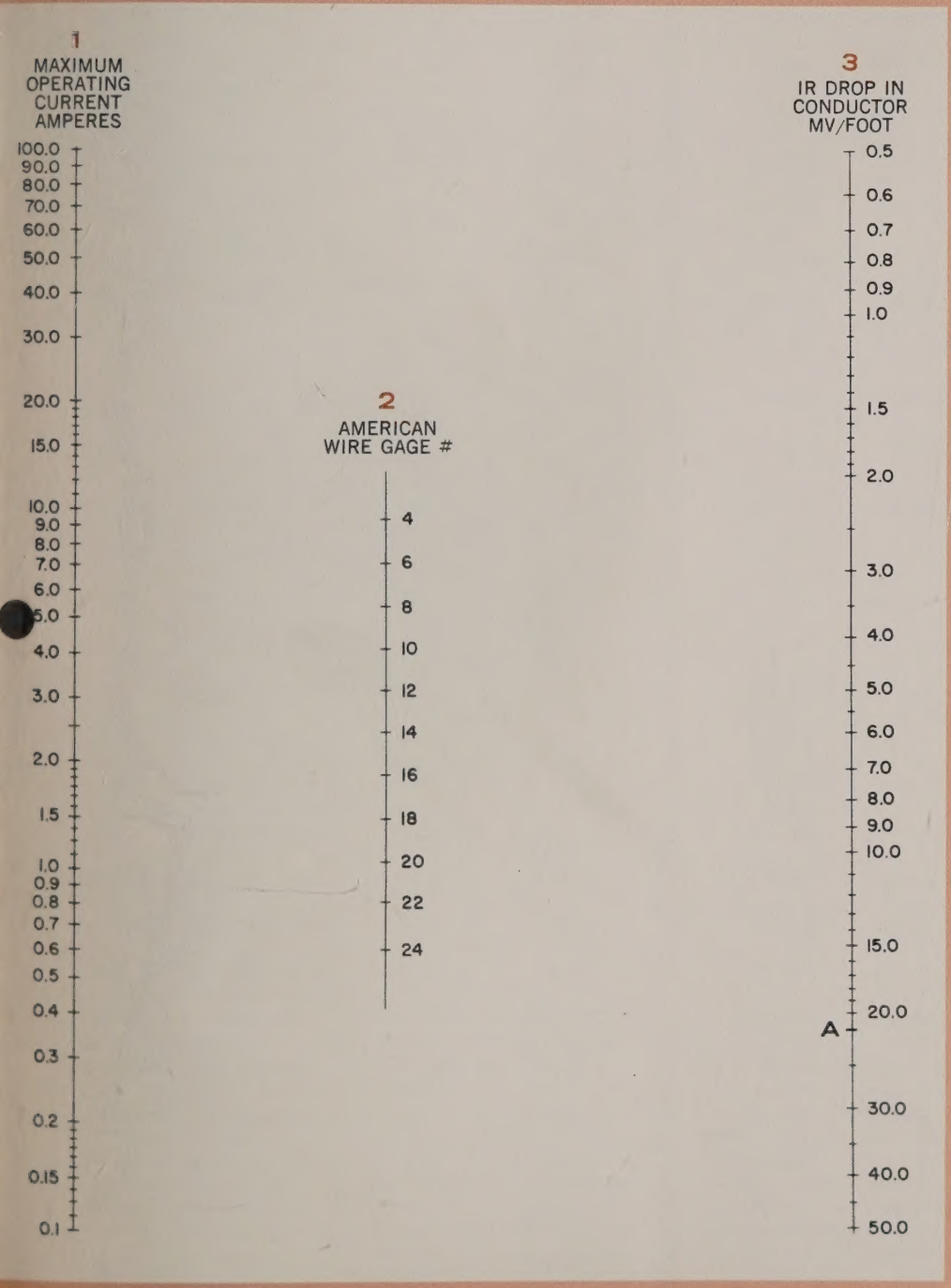
NOMOGRAPH OF VOLTAGE DROP ACROSS LOAD SUPPLY LEADS
(as a function of wire size and load current)



This nomograph can be used to find:

A.

Maximum current carrying capacity recommended for any standard wire size.

1) With straight edge connect wire size (scale 2) to point "A" (on scale 3).
2) Read I_{max} on scale 1.

B.

Voltage drop in millivolts per foot for known wire size & operating current.

1) With straight edge connect known current (scale 1) & wire size (scale 2).
2) Read voltage drop on scale 3.

C.

Wire size required for known operating current & known maximum tolerable voltage drop across supply leads.

1) Determine max. tolerable drop in millivolts **per foot** of lead (sum of positive & negative leads).
2) Connect value on scale 3 as determined in step (1) to known current on scale 1.
3) Read wire size on scale 2.

NOTE: A voltage regulated Power Supply controls the voltage across its output terminals. Hence the wire conductors used to connect the load must be considered as part of the load. At high load currents the voltage drop across the supply leads may appreciably degrade regulation at the load. Kepco models equipped with the **remote error sensing** feature can automatically compensate for voltage drops of up to 500 mv across each load supply lead.

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INDEX BY OUTPUT VOLTAGE

(See pages 2-3 for index by design group)

DC OUTPUT VOLTS	DC OUTPUT AMPS	MODEL	PAGE
0-2	0-1	* ABC 2-1M	8-9
0-7.5	0-2	* ABC 7.5-2M	8-9
0-7.5	0-2	* PSC 5-2	20-21
0-8	0-100	* KS 8-100M	10-11
0-11.110	0-1	* DR 11	36
0-12	0-100	• KO 12-100M	12-13
7.5-12.5	0-2	* PSC 10-2	20-21
5-13	0-50	• SR 12-50	22-23
2-14	30a or 240 watts	KM 251	33
0-14	0-7	SM 14-7M	14-15
0-14	0-15	SM 14-15M	14-15
0-14	0-30	SM 14-30M	14-15
0-15	0-1	* ABC 15-1M	8-9
0-7.5-15	0-10	PR 15-10M	34-35
0-15	0-30	PR 15-30M	34-35
12.5-17.5	0-2	* PSC 15-2	20-21
0-18	0-0.5	* SC 18-0.5M	16-17
0-18	0-1	* SC 18-1M	16-17
0-18	0-2	* SC 18-2M	16-17
0-18	0-4	* SC 18-4M	16-17
0-18	0-50	* KS 18-50M	10-11
17.5-22.5	0-2	* PSC 20-2	20-21
0-25	0-50	• KO 25-50M	12-13
0-30	0-0.3	*ABC 30-0.3M	8-9
24-32	0-50	• SR 28-50	22-23
0-32	0-0.5	* SC 32-0.5	18-19
0-32	0-1	* SC 32-1	18-19
0-32	0-1.5	* SC 32-1.5	18-19
0-32 Dual Output	0-1.5	* 2SC 32-1.5	18-19
0-32	0-2.5	* SC 32-2.5	18-19
0-32	0-5	* SC 32-5	18-19
0-32	0-10	SC 32-10A	18-19
0-32	0-15	SC 32-15A	18-19
22.5-32.5	0-1	* PSC 28-1	20-21
0-33	0-5	* SC 33-5M	16-17
5-35	12a or 240 watts	KM 252	33
0-36	0-0.5	* SC 36-0.5M	16-17
0-36	0-1	* SC 36-1M	16-17
0-36	0-2	* SC 36-2M	16-17
0-36	0-5	SM 36-5M	14-15
0-36	0-10	SM 36-10M	14-15
0-36	0-15	SM 36-15M	14-15
0.1-36	0-15	KM 236-15A	32
0-36	0-30	* KS 36-30M	10-11
0.1-36	0-30	KM 236-30	32
0.1-36	0-50	KM 236-50	32
0-19-38	0-5	PR 38-5M	34-35
0-38	0-15	PR 38-15M	34-35
0-40	0-0.5	*ABC 40-0.5M	8-9
32.5-42.5	0-1	* PSC 38-1	20-21
0-45	0-30	• KO 45-30M	12-13
44-52	0-30	• SR 48-30	22-23
0-60	0-2	SC 60-2	18-19
0-60	0-5	SC 60-5	18-19
20-60	6a or 240 watts	KM 253	33
0-60	0-20	* KS 60-20M	10-11
0-70	0-20	• KO 70-20M	12-13
36-72	0-0.5	*SC 3672-0.5M	16-17

• PROGRAMMABLE FOR VOLTAGE ONLY

DC OUTPUT VOLTS	DC OUTPUT AMPS	MODEL	PAGE
0-36-72	0-1	* SC 3672-1M	16-17
0-75	0-2	SM 75-2M	14-15
0-75	0-5	SM 75-5M	14-15
0-75	0-8	SM 75-8M	14-15
0-40-80	0-2.5	PR 80-2.5M	34-35
0-80	0-8	PR 80-8M	34-35
30-90	4a or 240 watts	KM 254	33
0-100 Dual Output	0-0.2	*2SC 100-0.2	18-19
0-150	0-1	SC 150-1	18-19
0-150	0-0.125	KR 11M	28-29
0-150	0-0.3	KR 12M	28-29
0-150	0-0.6	KR 8M	28-29
0-150	0-1.5	KR 16M	28-29
0-78-155	0-1	PR 155-1M	34-35
0-155	0-4	PR 155-4M	34-35
0-160	0-1	SM 160-1M	14-15
0-160	0-2	SM 160-2M	14-15
0-160	0-4	SM 160-4M	14-15
60-180	2a or 240 watts	KM 255	33
0-200	0-0.1	*ABC 200M	8-9
100-200	0-0.125	KR 1M	28-29
100-200	0-0.3	KR 3M	28-29
100-200	0-0.6	KR 5M	28-29
100-200	0-1.5	KR 17M	28-29
unregulated 0-300 0-300	0-0.075 0-0.075	103	30-31
0-300	0-1	SC 300-1	18-19
0-155-310	0-0.6	PR 310-0.6M	34-35
0-310	0-2	PR 310-2M	34-35

DC OUTPUT VOLTS	DC OUTPUT AMPS	MODEL	PAGE
0-165-325	0-0.5	SM 325-0.5M	14-15
0-325	0-0.2	*HB 2M	24-25
0-325	0-0.4	*HB 4M	24-25
0-325	0-0.6	*HB 6M	24-25
0-325	0-0.8	*HB 8M	24-25
0-325	0-1	SM 325-1M	14-15
0-325	0-2	SM 325-2M	14-15
195-325	0-0.125	KR 2M	28-29
195-325	0-0.3	KR 4M	28-29
195-325	0-0.6	KR 6M	28-29
195-325	0-1.5	KR 18M	28-29
0-400 0-150 bias	0-0.150 0-0.005	400B	30-31
0-400 0-400 0-150 bias	0-0.150 0-0.150 0-0.005	multiple output 2400B	30-31
0-411.110	0-0.5	*DR 400	36
295-450	0-0.125	KR 9M	28-29
295-450	0-0.3	KR 10M	28-29
295-450	0-0.6	KR 7M	28-29
295-450	0-1.5	KR 19M	28-29
0-450 0-450	0-0.3 0-0.3	multiple output 430D	30-31
0-600 0-150 bias	0-0.5 0-0.005	605	30-31
0-600 0-150	0-0.3 0-0.005	615B	30-31
0-600 0-600	0-0.2 0-0.2	multiple output 800B	30-31
0-1000	0-0.5	1250B	30-31
0-1200	0-0.05	1220C	30-31
0-1500	0-0.005	*ABC 1500M	8-9
0-1500	0-0.2	1520B	30-31
0-2500	0-0.05	2500	30-31

SUBSTANTIAL QUANTITIES OF LISTED POWER SUPPLIES ARE ALWAYS AVAILABLE FROM STOCK.

* *Programmable current and voltage regulated power supplies, see Pages 26-27*

■ *Nomograph of voltage drop versus wire size and supply current on page 37*

■ *Selection and application of power supplies and design notes, see page 5*

■ *Glossary of power supply terms, see pages 6-7*

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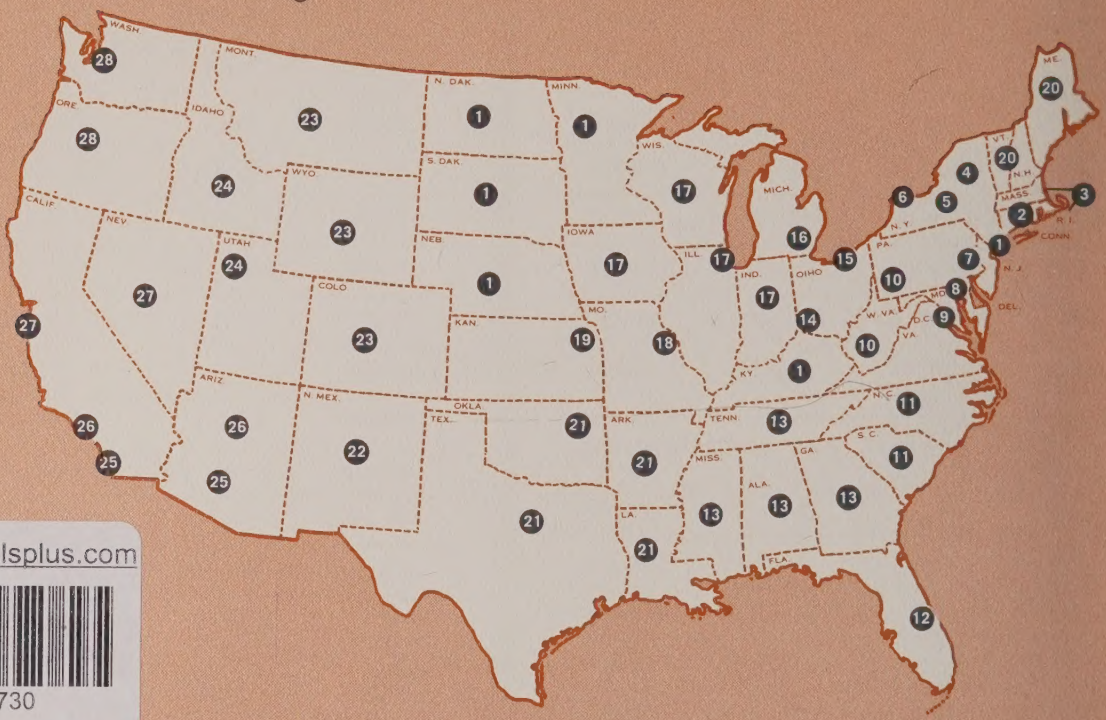

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